

# DSR-20MD/20MDP

RMT-DS20

## SERVICE MANUAL

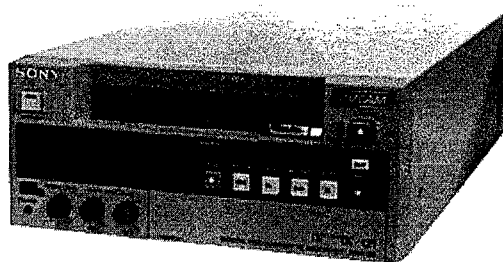


Photo: DSR-20MD

*US Model  
Canadian Model*

*DSR-20MD*

*AEP Model  
Australian Model  
New Zealand Model*

*DSR-20MDP*

E MECHANISM

### SPECIFICATIONS

<b>System</b>		<b>S video output</b>	Mini DIN 4-pin
Recording format	DVCAM format		Luminance signal: 1 Vp-p (75 ohms unbalanced)
Video signal			Chrominance signal: 0.286 Vp-p (DSR-20MD) 0.3 Vp-p (DSR-20MDP) (75 ohms unbalanced)
DSR-20MD:	EIA STANDARD, NTSC color system		
DSR-20MDP:	CCIR STANDARD, PAL colour system	<b>Audio input</b>	Phono jack (L, R) Input level: 2 Vrms (full bit) Input impedance: more than 47 kohms
Usable cassettes	Standard-DVCAM cassettes and Mini-DVCAM cassettes	<b>Audio output</b>	Phono jack (L, R) Output level: 2 Vrms (full bit) Output impedance: less than 10 kohms
Recording time	184 minutes (when using the PDV-184ME cassette) 40 minutes (when using the PDVM-40ME cassette)	<b>Monitor output</b>	BNC connector Output signal: 1 Vp-p (75 ohms unbalanced)
<b>Clock</b>		<b>Control S input</b>	Stereo minijack (1) For the optional DSRM-10 Remote Control Unit
Quartz locked		<b>Foot switch input</b>	Stereo minijack (1) For the optional Foot Switch
DSR-20MD:	12-hour cycle display	<b>LANC input/output</b>	Stereo mini-mini jack (1) For the optional RM-95 Remote Commander
DSR-20MDP:	24-hour cycle display		
Power back-up	Built-in self-charging capacitor Back-up duration: up to about 100 hours (After 8-hour charges)		
<b>Inputs and outputs</b>			
Video input	BNC connector Input signal: 1 Vp-p (75 ohms unbalanced)		
Video output	BNC connector Output signal: 1 Vp-p (75 ohms unbalanced)		
S video input	Mini DIN 4-pin Luminance signal: 1 Vp-p (75 ohms unbalanced) Chrominance signal: 0.286 Vp-p (DSR-20MD) 0.3 Vp-p (DSR-20MDP) (75 ohms unbalanced)		

— Continued on next page —



DIGITAL VIDEO CASSETTE RECORDER



SONY®

**RS-232C input/output**

D-sub 9-pin connector (1)  
 Output: 3 kilohms at load  
 Typ  $\pm 9V$   
 Input: 5 kilohms at load  
 High level 5 to 15V  
 Low level -5 to -15V

**Headphones output**

Stereo minijack (1)

**DV input/output**

4-pin jack (1)

**General****Power requirements**

DSR-20MD: 120 V AC, 60 Hz  
 12 V DC, 2.0 A (4.0 A at the peak)  
 DSR-20MDP: 220 - 240 V AC, 50 Hz  
 12 V DC, 2.0 A (4.0 A at the peak)

**Power consumption**

DSR-20MD: 0.45 A at 77°F, 120 V AC, 60 Hz  
 (during playback)  
 DSR-20MDP: 0.35 A at 25°C, 220 - 240 V AC,  
 50 Hz (during playback)

**Operating temperature**

5°C to 40°C (41°F to 104°F)

**Storage and transport temperature**

-20°C to +60°C (-4°F to +140°F)

**Operating humidity**

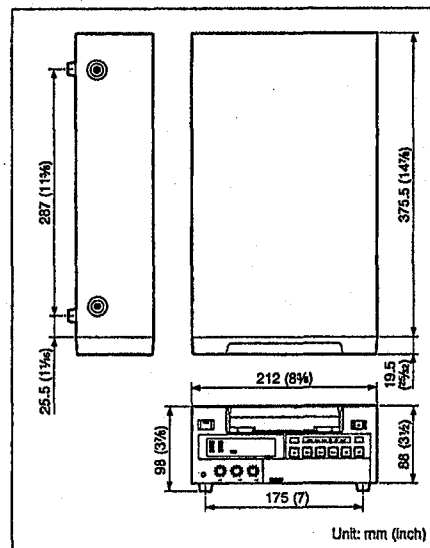
20% to 80%

**Storage and transport humidity**

20% to 80%

**Dimensions**

Approx. 212 × 98 × 395 mm  
 (8 3/8 × 3 7/8 × 15 5/8 inches)  
 (w/h/d, including projecting parts  
 and controls)

**Mass**

Approx. 5 kg (11 lb.)

**Supplied accessories**

Remote commander (1)  
 Size AA (R6) batteries (2)  
 AC power cord (1)  
 Cleaning cassette (1)  
 Instructions for Use (1)

Design and specifications are subject to change  
 without notice.

**SAFETY-RELATED COMPONENT WARNING!!**

COMPONENTS IDENTIFIED BY MARK  $\Delta$  OR DOTTED LINE WITH MARK  $\Delta$  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

**ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!**

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE  $\Delta$  SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.



## SAFETY CHECK-OUT

(US Model only)

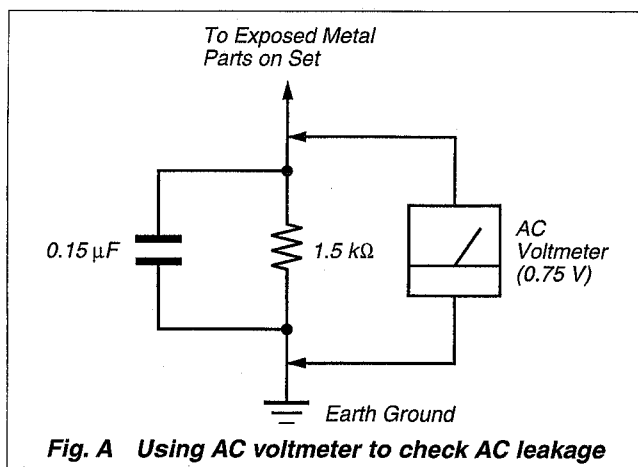
After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
6. Check the B+ voltage to see it is at the values specified.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

### LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

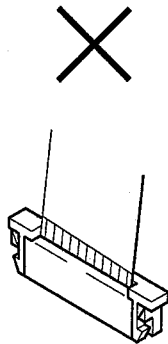
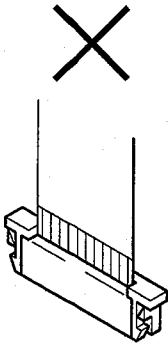
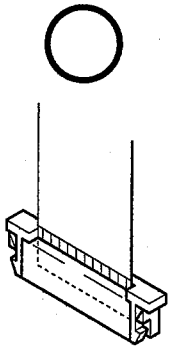
1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)



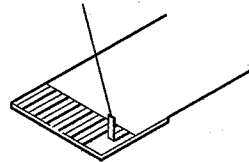
## SERVICE NOTE

- **Note for Repair**

Make sure that the flat cable and flexible board are not cracked or bent at the terminal.  
Do not insert the cable insufficiently nor crookedly.



Cut and remove the part of gilt which comes off at the point.  
(Take care that there are some pieces of gilt left inside)



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## SECTION 1 GENERAL

This section is extracted from DSR-20MD/20MDP instruction manual.

### Features

The DSR-20MD/20MDP is a 1/2-inch digital video cassette recorder that uses the DVCAM digital recording format. This system achieves stable, superb picture quality by digitally processing video signals that are separated into color difference signals and luminance signals (component video). The unit is equipped with a full-fledged analog interface to support hybrid systems that combine conventional analog equipment with digital equipment.

The DSR-20MD/20MDP's main features are described below.

#### DVCAM Format

DVCAM is based on the consumer DV format, which uses the 4:1:1 component digital format (DSR-20MD) or the 4:2:0 format (DSR-20MDP), and provides a 1/2-inch digital recording format for professional use.

#### High picture quality, high stability

Video signals are separated into color difference signals and luminance signals, which are encoded and compressed to one-fifth size before being recorded to ensure stable and superb picture quality. Because the recording is digital, multi-generation dubbing can be performed with virtually no deterioration of quality.

#### Wide track pitch

The recording track pitch is 15  $\mu$ m, fully 50 percent wider than the DV format's 10  $\mu$ m track pitch. Thanks to this feature, the DVCAM format sufficiently meets the reliability and precision requirements of professional editing.

#### High-quality PCM digital audio

PCM recording makes for a wide dynamic range and a high signal-to-noise ratio, thereby enhancing sound quality.

There are two recording modes: 2-channel mode (48 kHz sampling and 16-bit linear code), which offers sound quality equivalent to the DAT (Digital Audio Tape) format, or 4-channel mode (32 kHz sampling and 12-bit nonlinear code).

#### Playback compatibility with DV format

A DV cassette recorded on a DV-format VCR can be played back on this unit. (Cassettes recorded in LP mode cannot be played back.)

#### Choice of two cassette sizes

The unit can use both standard-size and mini-size DVCAM cassettes.

- According to cassette size, it automatically changes the position of the reel drive plate.
- The maximum recording/playback times are 184 minutes for standard size cassettes and 40 minutes for mini-size cassettes.

#### Other Features

##### Compact size

The unit achieves compact size suitable for using on a demonstration. The unit is also equipped with basic functions that are needed for videocassette recorders and players used in professional digital video editing systems.

##### DC IN connector

The unit is equipped with the DC IN connector to use in the case that the AC power is not available. Connect the optional BP-90A Ni-Cd Battery Pack with the battery adaptor and DC cable.

#### Menu system for functionality and operation settings

The unit provides a menu system to make its various functions easier to use and set up its operation conditions.

#### Superimposition function

Time code, menus, error messages, and other text data can be superimposed and output in analog composite video signals.

#### Remote control

The unit can be operated by remote control from an editing controller that supports the RS-232C interface or from a SIRCS<sup>®</sup> system remote controller or foot switch such as the optional DSRM-10 or SYRM-100A.

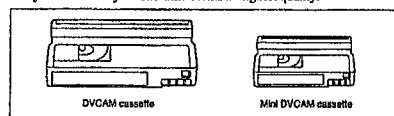
### Features

#### Notes on Video Cassettes

##### Usable cassettes

Use Standard-DVCAM cassettes or Mini-DVCAM cassettes with this VCR. PDV-184MB can record programs for 184 minutes and PDVM-40MB can record for 40 minutes.

You can get the highest quality pictures with this digital video cassette recorder using DVCAM cassettes. You may not be able to get as good quality with other cassettes. We recommend using DVCAM cassettes so that you can record your one-time events in highest quality.

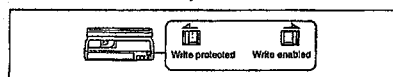


##### Cassette memory

Cassette memory is an optional feature that is mounted on some Standard DVCAM cassettes and Mini DVCAM cassettes. When you record a program, the recording date and time, and the program's position on the tape are stored in the cassette memory so that you can quickly locate the program later on. CW16K indicates that you can use the cassettes 16 kbits of data can be stored on. On this VCR, you can use the cassettes up to 16 kbits of data can be mounted on.

##### To save a recording

To prevent accidental erasure of a recording, slide in the safety switch on the cassette so that the red portion becomes visible. To record on a tape, slide out the switch so that the red portion is hidden.

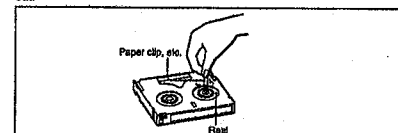


##### Note

DVCAM, DV, DVX and CH are trademarks.

#### Checking the tape for slack

Using a paper clip or a similar object, turn the reel gently in the direction shown by the arrow. If the reel does not move, there is no slack. Insert the cassette into the cassette compartment, and after about 10 seconds take it out.



#### Notes on Recording / Playback

##### Copyright precautions

##### On recording

You cannot record any software having copyright protection signals on this VCR. If you start recording protected video and audio signals, a warning message appears on the monitor screen and the VCR stops recording.

##### On playback

When you play back software having copyright protection signals on this VCR, you may not be able to copy it onto other equipment.

##### Limitations caused by the difference in format

This VCR can record, play back and edit the tapes recorded in DVCAM format. It can also play back the tapes recorded in DV format (SP mode). However, due to the difference in format, you may not be able to record or edit some tapes affected by recording conditions of the tape (e.g., A tape originally recorded in DV format is dubbed in DVCAM format). For details, refer to "Compatibility of DVCAM and DV format" on page 42.

##### No compensation for contents of the recording

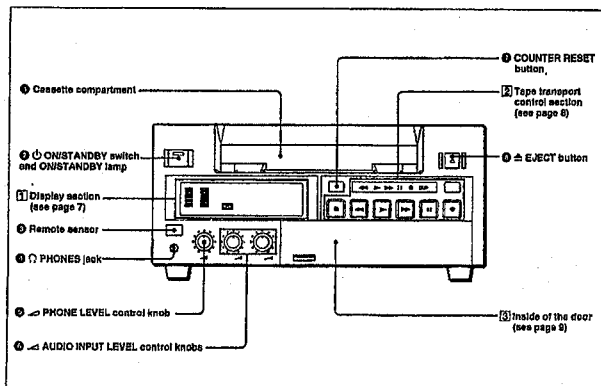
Contents of the recording cannot be compensated for if recording or playback is not made due to a malfunction of the VCR, video tape, etc.

##### Note

You cannot play back a DVCAM tape recorded in other color systems on this VCR.

## Location and Function of Parts

### Front Panel



**1 Cassette compartment**  
Accepts standard-size or mini-size DVCAM digital videocassettes. When using a mini-size cassette, insert it into the middle of the compartment.  
For details of usable cassettes, see page 4.

**2 ON/STANDBY switch and ON/STANDBY lamp**  
Press this switch to turn on the power, and the ON/STANDBY lamp lights in green. Press it again to turn to standby mode, and the lamp goes off.

**Note**  
When the REMOTE/LOCAL switch is set to REMOTE, you cannot turn the unit to standby mode.

**3 Remote sensor**

**4 PHONES jack (stereo minijack)**  
Connect stereo headphones for headphone monitoring during recording or playback.  
The audio signal you want to monitor can be selected

with the AUDIO MONITOR selector inside of the door (3).

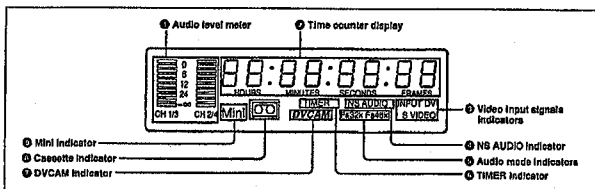
**5 PHONE LEVEL control knob**  
Controls the volume of the headphones connected to the PHONES jack.

**6 AUDIO INPUT LEVEL control knobs**  
When recording, you can use these knobs to set audio input levels for CH-1 (channel 1) and CH-2, respectively.

**7 COUNTER RESET button**  
Press this button to reset the tape counter in the display window to "00:00:00 (0h00m00s)." This button does not work when displaying the time code or the remaining time.

**8 EJECT button**  
Press this button to eject a cassette.

### 1 Display section



**1 Audio level meter**  
Indicates the recording level during recording or EE mode<sup>1</sup> and the playback level during playback. When the audio level exceeds 0 dB, the red indicator lights.

#### Note

If you play back the tape whose audio was only recorded on channel 2, the audio level meter for CH2/4 may not function.

#### 2 Time counter display

Indicates the following:  
• Time data: count value of the time counter, time code and remaining time  
• Alarm messages (see page 35)  
• Messages for self-diagnosis function (see page 39)

#### Notes

• For DSR-20MDP: Time code is set to the non drop frame mode only.

• Time code is indicated as follows:  
Drop frame: "00:00:00:00" ("00:00:00:00" on the monitor) (DSR-20MD only)  
Non drop frame: "00:00:00:00"

**3 Video input signals indicators**  
Indicates the currently selected video input signals. INPUT VIDEO, INPUT S VIDEO or INPUT DV lights.

#### 4 NS (Non Standard) AUDIO indicator

Lights when the VCR plays back a tape whose audio recording was made in the unlock mode, or when unlock mode signals are input through the DV I jack.  
For details of unlock mode, see page 42.

#### 5 Audio mode indicators

Indicates the audio mode during playback or recording, or while in EE mode.  
• During playback it indicates the audio mode in which the tape was recorded.  
• During recording or while in EE mode, it indicates the currently selected audio recording mode. You can select audio recording mode by setting "AUDIO MODE" menu (see page 33).  
Fs32k: Lights when playing the tapes recorded in 4-channel mode, or recording a tape in 4-channel mode.  
Fs48k: Lights when playing the tapes recorded in 2-channel mode, or recording a tape in 2-channel mode.

#### Note

When recording in 4-channel mode on this VCR, audio signals are recorded only in channels 1/2.

#### 6 TIMER indicator

Lights when setting the TIMER switch to REPEAT or REC.

#### 7 DVCAM indicator

Lights except playing back the DV-formatted tapes.

### 1 EE mode

"EE" stands for "Electric to Electric". When in this mode, the video and audio signals that are input to the VCR's recording circuitry do not pass through any magnetic conversion circuits but instead are output via electric circuits only. This mode is used to check input signals and adjust input levels.

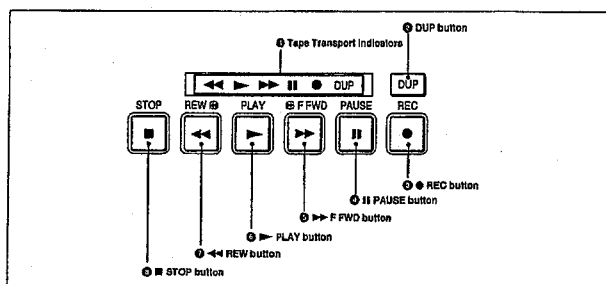
Chapter 1 Overview 7

## Location and Function of Parts

**1 Cassette Indicator**  
Lights when inserting a digital video cassette available for this VCR. It flashes when ejecting a cassette.

**2 Mini Indicator**  
Lights when inserting mini-size digital video cassette.

### 2 Tape transport control section



#### 1 Tape Transport indicators

**2 DUP (duplicate) button**  
Use this button to make a work tape having the same time code as the source tape.  
For details of duplicate, see page 30.

**3 REC (record) button**  
When you press the ► PLAY button while holding down this button, the indicator lights and recording begins. To set the VCR to recording pause mode, press the II PAUSE button while holding down this button.

**4 II PAUSE button**  
When you press this button, the indicator lights and the VCR is set to pause mode.

**5 ►► F FWD (fast forward) button**  
When you press this button, the indicator lights and the tape is fast forwarded. During fast forward, the picture does not appear on the monitor (you can see the picture of the EE mode during fast forward).  
To search forward, hold this button down during fast forward.

**6 ►► PLAY button**  
When you press this button, the indicator lights and playback begins.

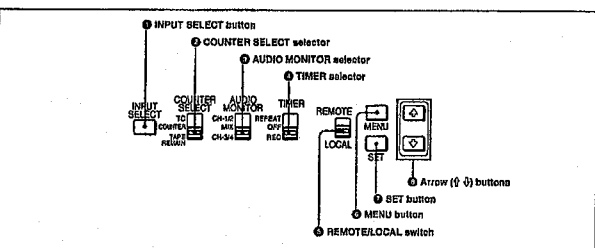
If you press this button while holding down the ◀◀ REW button during stop, the tape is rewound to its beginning and starts playing automatically (during rewind, the REW indicator lights and the PLAY indicator flashes).

**7 ◀◀ REW (rewind) button**  
When you press this button, the indicator lights and the tape starts rewinding. During rewind, the picture does not appear on the monitor (you can see the picture of the EE mode during rewind).  
To search backward, hold this button down during rewind.

If you press the ►► PLAY button while holding down this button during stop, the tape is rewound to its beginning and starts playing automatically (during rewind, the REW indicator lights and the PLAY indicator flashes).

**8 ■ STOP button**  
Press this button to stop the current tape transport operation.

### 3 Inside of the door



#### 1 INPUT SELECT button

Select video input signals. Each press of this button cycles through three video signal selection options: video, S-video, and DV input. When you select one of these options, the corresponding indicator in the display lights up.

#### 2 COUNTER SELECT selector

Select the type of time data in the time counter display.  
TC: Time code  
COUNTER: Count value of the time counter  
TAPE REMAIN: Remaining time

#### 3 AUDIO MONITOR selector

Use to select the audio track you want to hear when playing back a tape recorded in 4-channel mode (Fs32k).  
CH-1/2: Channels 1/2 only  
MIX: Channels 1/2 and channels 3/4 (mix)  
CH-3/4: Channels 3/4 only

#### 4 TIMER selector

Use to select timer recording or auto repeat using an external AC timer (not supplied).  
REPEAT: When the power is supplied to this VCR, a tape rewinds to its beginning automatically and playback starts. The VCR repeats the playback from the beginning to the first index (if there is no index on the tape, to the unrecorded portion; if no unrecorded portion, to the tape end). Auto repeat also functions if you set this selector to REPEAT during playback.  
OFF: Timer is released.

REC: When the power is supplied to this VCR, recording starts.

#### 5 REMOTE/LOCAL switch

Selects whether the unit is operated from its front panel or from external (remote) equipment.  
REMOTE: The unit is operated from an editing controller connected to the RS-232C connector on the rear panel. No operation on the front panel works except sliding the switch or selectors.  
LOCAL: The unit is operated from its front panel, from an external equipment connected to the LANC jack on the rear panel, or from a SIRC-system remote controller connected to the REMOTE CONTROL S jack on the rear panel.

#### 6 MENU button

Press this button to display the menu on the monitor screen. Press it again to return from the menu display to the usual display.

#### Note

If you set the REMOTE/LOCAL switch to REMOTE while the menu display is on the monitor, it returns to the usual display.  
On how to use the menu, see Chapter 3 "Menu Settings."

#### 7 SET button

Press this button to save selected menu items to the unit's memory.

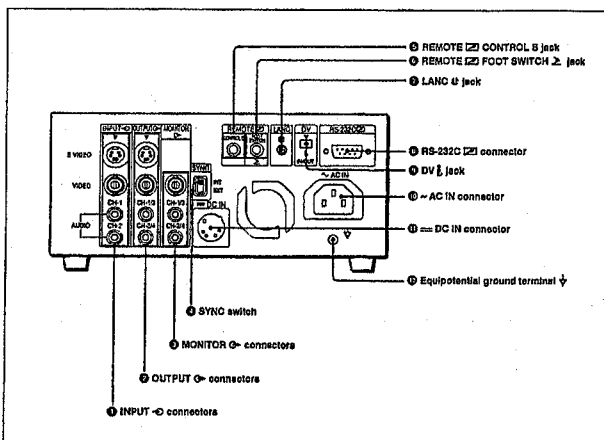
#### 8 Arrow (◀ ▶) buttons

Use these buttons to move around the menu items.



## Location and Function of Parts

### Rear Panel



#### 1 INPUT VIDEO connectors

Input video and audio signals. To connect a VCR equipped with the S-video input jack, use the S VIDEO jack on this VCR.

#### 2 OUTPUT VIDEO connectors

Output video and audio signals. To connect a VCR equipped with the S-video output jack, use the S VIDEO jack on this VCR.

#### 3 MONITOR VIDEO connectors

Output video and audio signals for monitoring.

#### 4 SYNC switch

Selects the reference signal. The video signal is locked to V-sync or H-sync, but not locked to sub-carrier. The sync phase is not adjusted. The video signal is not locked to DV input.

INT: Selects the playback signal on this VCR as the reference signal.

EXT: Selects the input video signal from the external equipment connected to this VCR as the reference signal.

#### Notes

- The picture and the sound may be distorted if:
  - You set the SYNC switch during playback.
  - The analog signal is input from the INPUT VIDEO connectors during playback with the SYNC switch set to EXT.
- If the SYNC switch is set to EXT during playback, the INPUT SELECT button does not work.

#### 5 REMOTE CONTROL S jack

Connect a SIRCS-system remote controller. When controlling this VCR from a remote controller such as the DSRM-10 or SVRM-100A (not supplied), connect the unit to the editing controller via this jack.

#### Note

SIRCS-system has the same function as CONTROL S-system.

#### 6 REMOTE FOOT SWITCH jack

Connect the optional Foot Switch to control this VCR.

#### Note

The Foot Switch must be conformed with Standard UL2601-1/EN60601-1.

For details on the Foot Switch, consult with authorized Sony dealers.

#### 7 LANC jack

When you connect the LANC jacks on this VCR and the other VCR, you can control this VCR (player) from the other VCR. The LANC connection transmits signals such as control signals, time code and time counter data and status data.

You can control this VCR by connecting the optional RM-95 Remote Commander to this jack.

#### Notes

- The other VCR (recorder) receives the time code data from the LANC jack only when this VCR (player) is set to show the time code indications.
- If the REMOTE/LOCAL switch is set to REMOTE, the LANC connection does not transmit signals.

#### 8 RS-232C connector (D-sub 9-pin)

Connect an editing controller or a personal computer with the RS-232C interface for remote-control of this VCR.

#### 9 DV I jack

The DV I jack is iLINK compatible. Use when the equipment connected to the VCR has a DV I jack. If you connect the VCR and the other equipment using DV I jacks, you can minimize deterioration of picture quality during dubbing, editing or capturing still pictures into a personal computer by digital processing. For details, refer to the instruction manual of the equipment you use.

#### Note

I is a trademark of Sony Corporation and indicates

that this product is in agreement with IEEE1394-1995 specifications and their revisions.

#### 10 AC IN connector

Connect to an AC power outlet using the supplied power cord.

#### 11 DC IN connector

Connect the optional BP-90A Ni-Cd Battery Pack with the battery adaptor and DC cable.

#### Notes

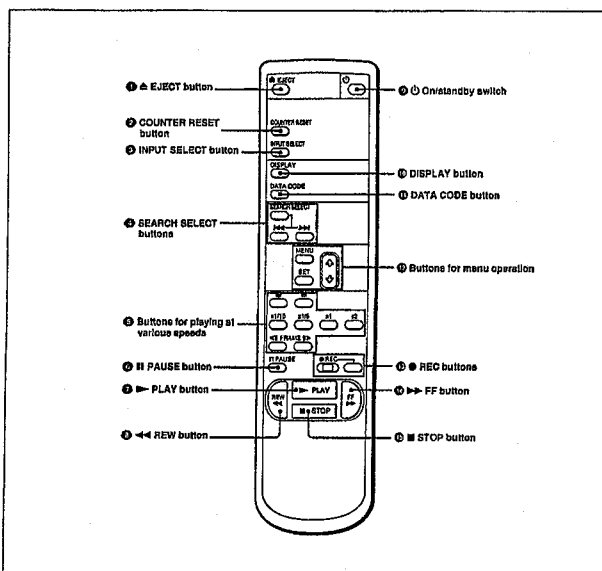
- If the voltage of the Battery Pack falls less than 11 V, a beep sound is output (when BEEP in the menu is set to OFF, it is not output) and "dolo" appears in the display window. Replace the battery by a charged one or remove it to use the AC power outlet.
- If the voltage of the Battery Pack falls less than 10.5 V, a beep sound is output (when BEEP in the menu is set to OFF, it is not output) and the VCR is set to the standby mode. As you cannot turn on the VCR at this moment, replace the battery by a charged one or remove it to use the AC power outlet.

#### 12 Equipotential ground terminal

Used to connect to the equipotential plug to bring the various parts of a system to the same potential. Refer to "Important safeguards/notices for use in the medical environment" on page ii.

## Location and Function of Parts

### Supplied Remote Commander



#### 1 EJECT button

#### 2 COUNTER RESET button

#### 3 INPUT SELECT button

#### 4 SEARCH SELECT buttons

Press these buttons to search for scenes using the index function. For details, see "Searching using the index function" on page 19.

#### 5 Buttons for playing at various speeds

##### 1/10 button

##### 1/5 button

##### 1 button

##### 2 button

##### FRAME 11/11 buttons

For details, see "Playing at various speeds" on page 18.

#### 6 PAUSE button

#### 7 PLAY button

#### 8 REW button

#### 9 Onstandby switch

#### 10 DISPLAY button

Press this button to see the indications, such as tape counter, on the monitor screen.

#### 11 DATA CODE button

Press this button to see tape information on the monitor screen.

For details, see "Displaying tape information" on page 22.

#### 12 Buttons for menu operation

##### MENU button

##### SET button

##### Buttons

#### 13 REC buttons

When you press these buttons at the same time, the indicator lights and recording begins.

#### 14 FF button

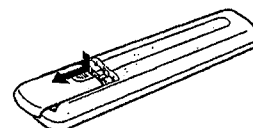
#### 15 STOP button

#### Note

When using the supplied remote commander, set REMOTE CONTROL in the menu to VTR4 (see page 34). Otherwise, you cannot operate this VCR with the supplied remote commander.

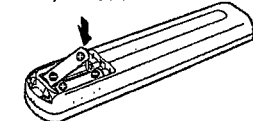
### Battery Installation

#### 1 Push and slide the lid to open.

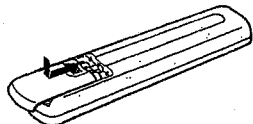


#### 2 Install the two size AA (R6) batteries (supplied) with the correct polarity.

Be sure to install the battery from the side.



#### 3 Replace the lid.



### Notes on batteries

- Make sure that the battery orientation is correct when inserting batteries.
- Do not mix an old battery with a new one, or different types of batteries.
- If you will not use the Remote Commander for a long time, remove the batteries to avoid damage from battery leakage. If batteries have leaked, remove them, wipe the battery compartment dry and replace the batteries with new ones.

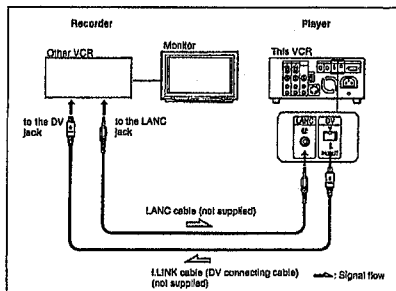
## Playback

This section describes the necessary connections, settings and operations to perform playback on this unit. The same settings and operations apply whether you are using the unit as part of an editing system, for dubbing, or as a stand-alone videocassette player.

### Connections for Playback

#### To digital video equipment with DV jack

The video and audio signals are sent with hardly any degradation, enabling high-quality editing. The signal flow is automatically detected so you need not make separate connections for input and output.



#### Notes

- Set DV EE OUT in the menu to OFF (see page 34).
- Audio signals are not output during playing at various speeds.
- With the DV connection, the sound is recorded in the same audio recording mode as that of the source tape. To record in a different audio recording mode from the source tape, use the INPUT  $\leftrightarrow$  connectors instead.
- With the DV connection, tape information (recording date, camcorder data, etc.) recorded on the source tape is transmitted from this VCR (player). As a result, when you play back a recorded tape and press the DATA CODE button, the same tape information recorded on the source tape is displayed on the monitor screen. However, contents of the cassette memory are not transmitted. In addition, the time code is newly recorded on the tape on the other VCR, except when copying a tape in Duplicate mode.
- As for the LANC connection, see "Notes for LANC connection" on the next page.

## Playback

### Settings for Playback

#### Preparation on the player (this VCR)

- 1 Power on the video monitor, then set the monitor's input according to the input signals from the recorder.
- 2 Set up the recorder.  
For details, see "Preparation on the recorder" below.
- 3 Power on this unit by pressing the  $\odot$  ON/STANDBY switch.  
The ON/STANDBY lamp lights in green.
- 4 If the other equipment that controls this VCR has the time code function, set the COUNTER SELECT selector to TC (see page 9).
- 5 When you play back a tape recorded in 4-channel mode (Fs 32k), set the AUDIO MONITOR selector to MIX (see page 9). Then select the precise balance between the tracks with the AUDIO MIX BALANCE in the menu (see page 33).

#### Notes

- With the DV connection, the playback VCR's AUDIO MONITOR (sound selection) and AUDIO MIX BALANCE (audio balance adjustment) do not function on the source audio output through the DV  $\mathbb{L}$  jack.
- You cannot change the input signal selection during playback or playback pause mode.

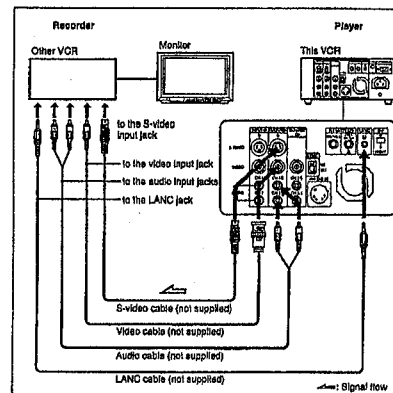
#### Preparation on the recorder

- Insert a tape for recording.
- Select the formats of video and audio input signal to be recorded.
- Set the LANC mode to M.

#### Notes

- Editing is not possible with a tape that is copyright protected.
- You cannot use the video equipment that has no LANC mode switch as a recorder.

#### To video equipment without DV jack



#### Notes

- When you connect output jacks of the recorder to input jacks of this VCR, select the input correctly to prevent a humming noise.
- Distorted signals (e.g., when played back at a speed other than normal) will not be recorded properly.
- The indications displayed on the monitor screen are output only via the MONITOR  $\odot$  connector.

#### Notes for LANC connection

- With the LANC connection, refer to the instruction for use supplied with the recorder VCR.
- The LANC connection transmits signals such as control signals, time code, time counter data and status data.
- If the other VCR has a LANC  $\odot$  jack of 5-pin DIN type, connect with the VK-810 Control L connecting cable (not supplied).
- The jacks labeled CONTROL L have the same function as LANC  $\odot$  jacks. The jacks labeled REMOTE on other equipment may also have the same.
- The other VCR (recorder) receives the time code data from the LANC  $\odot$  jack only when this VCR (player) is set to show the time code indications.
- With the LANC connection, this VCR only works as a slave unit.

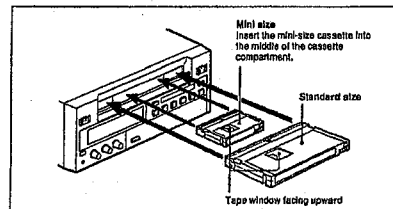
### Playback Procedure

#### Notes

- When controlling this unit from an editing controller or a personal computer, set the REMOTE/LOCAL switch to REMOTE. When not, set the switch to LOCAL (see page 9).
- Do not insert the cassette forcibly. The VCR may be damaged.

- 1 After checking the tape for slack, hold the cassette so that the tape window is facing upward, then insert it into this unit as illustrated below.  
For details of checking the tape for slack, see page 5.

The cassette is automatically drawn into the unit.



- 2 Press  $\blacktriangleright$  PLAY.

This starts the playback operation.

## Playback Functions

## Playing at various speeds

You can enjoy playback functions using supplied remote commander.

Playback options	Operation
Play at 1/10 of normal speed	Press x 1/10 during playback
Play at 1/6 of normal speed	Press x 1/6 during playback
Play at normal speed	Press x 1 during playback
Play at twice the normal speed	Press x 2 during playback
Play frame by frame	Press FRAME <II/III> during pause.

## To hear the sound during playing at various speeds

If you want to hear the sound during playing at various speeds, set JOG WITH SOUND in the menu to ON (see page 33).

## Searching using the index function

Three kinds of search are available on this VCR:

- Searching for the beginnings of recordings: Index search
- Searching for a point on the tape where the recorded date changes: Date search
- Searching for scenes recorded in the photo mode with a digital camcorder: Photo search

## Searching with the cassette memory

If the tape has a cassette memory, the recordings are listed in the chronological list in the order they were made. You can search using this chronological list.

If the tape does not have a cassette memory, you cannot search for scenes in the chronological order.

- 1 Press SEARCH SELECT to select the search type: INDEX, DATE or PHOTO SEARCH.

The chronological list appears on the monitor screen.

INDEX SEARCH	ON
1 2/28/93 10:04AM LINE	
2 3/7/93 12:29/11 LINE	
3 3/11/93 8:56AM LINE	
4 3/1/93 7:05PM LINE	
5 7/1/93 10:15AM LINE	
6 8/28/93 12:29/11 LINE	
7 10/1/93 8:20AM LINE	
8 12/26/93 12:29/11 LINE	
9	

When selecting INDEX SEARCH (DSR-200MD)

- 2 Press <◀> or <▶> to select a recording.

The VCR starts searching and when it locates the recording, begins playback. During Photo search, the VCR pauses.

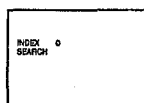
## Playback

## Searching without cassette memory

When you use a tape without a cassette memory, the VCR searches in the order of the actual positions of the recordings, regardless of the setting of CASSETTE MEMORY SEARCH in the menu.

When you use a tape with a cassette memory, set CASSETTE MEMORY SEARCH in the menu to OFF (see page 34).

- 1 Press SEARCH SELECT to select the search type.



When selecting INDEX SEARCH

- 2 Press <◀> or <▶> repeatedly to locate the recording you want.

The VCR starts searching backwards or forwards until the index number comes to zero, then plays back the recording. During Photo search, the VCR pauses.

## How signals are recorded

The VCR marks the tape when REC button is pressed. There are three different signals for each search method. The type of signal recorded and where it is recorded (on the tape or in the cassette memory) depends on the video equipment used for recording. Please note that if the signals for certain search type are not recorded, you cannot do that type of search.

When you record with a Sony digital camcorder (DSR-200Z/200P/200A/200AP/PD100/PD100P/PD100A/PD100AP)

Signals for	In cassette memory	On tape
Index search*	No	No
Date search	Yes	Yes
Photo search	Yes	Yes

When you record on this VCR

Signals for	In cassette memory	On tape
Index search*	Yes	Yes
Date search	No	Yes
Photo search	No	No

\* The signals for Index search are recorded when you start recording in stop mode.

## Note

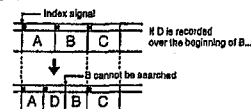
When recording on this VCR, signals for index search do not have information on a day of the week.

## About the cassette memory

- If you use a tape with CH mark, the cassette memory stores up to 135 index signals. (The number changes depending on the data size combination of index, date, and photo data stored on a tape.) This VCR is capable of storing and retrieving up to 16 kilobits of cassette memory.
- To locate recordings whose signals are disabled to be stored in the cassette memory, or to locate recordings in order of their position on the tape, set CASSETTE MEMORY SEARCH in the menu to OFF (see page 34). You can use the same procedure to search for a recording on a tape without cassette memory.

## Notes

- Each program is indexed at its beginning. If you record another program over the beginning of the first program, you will not be able to locate the original program.

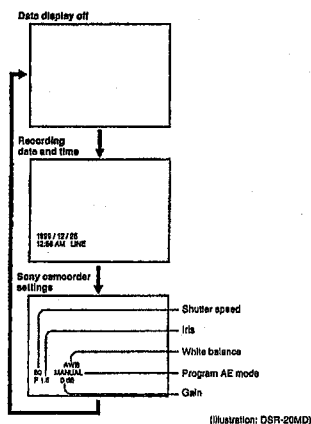


- You cannot add indexes after recording. To add indexes only for Auto Repeat, start recording from the point you want to start indexing.
- You cannot erase indexes after recording. To delete indexes for Auto Repeat, set INDEX WRITE in the menu to OFF (see page 34). Then record over the index signal you want to erase.
- Searching may not be done correctly if the signals were not recorded on a Sony-brand digital video equipment.

## Displaying tape information

If you record on a tape using a Sony digital camcorder DSR-200/200P/200A/200AP/PD100/PD100P/PD100A/PD100AP, camcorder data (the shutter speed, program AE mode, white balance, iris and gain) can be recorded on the tape. You can check these data during playback on this VCR.

Press DATA CODE during playback.  
Each time you press DATA CODE, the display changes as follows.



(Illustration: DSR-200MD)

### Notes

- When the information was not recorded, "----" appears instead.
- The camcorder data displayed on the monitor screen by this VCR are partially different from those shown by the digital camcorder.

## Auto Repeat

This VCR can repeat the playback of all or a part of the tape.

- 1 Set the TIMER selector on the front panel to REPEAT.

The TIMER indicator on the front panel lights.

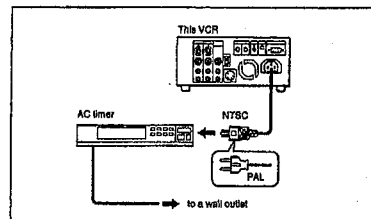
- 2 Press ◀◀ REW to rewind the tape to its beginning.
- 3 Press ▶▶ PLAY.

Playback starts automatically. The VCR repeats the playback from the beginning to the first index (if there is no index on the tape, to the unrecorded portion; if no unrecorded portion, to the tape end).

### Auto Repeat using an external AC timer

If you connect an external AC timer (not supplied) to this VCR, you can repeat playback automatically at the preset time.

- 1 Connect an external AC timer (not supplied) to this VCR.



- 2 Set the TIMER selector on the front panel to REPEAT.

The TIMER indicator in the display window lights.

- 3 Set the timer-on time on the external AC timer.

At the preset time, the power turns on, and Auto Repeat playback starts automatically within one minute. The VCR repeats the playback from the beginning to the first index (if there is no index on the tape, to the unrecorded portion; if no unrecorded portion, to the tape end).

### Notes

- The VCR cannot search for an index or unrecorded portion within 20 seconds from the beginning of the tape.
- While a tape is running, do not turn off the power using an AC timer. The VCR and a tape may be damaged. When turning off the power of the VCR, make sure to press the ■ STOP button on this VCR first to stop the tape transport, then turn off the power.

### To stop Auto Repeat

Press the ■ STOP button.

### To release Auto Repeat mode

Set the TIMER selector to OFF.

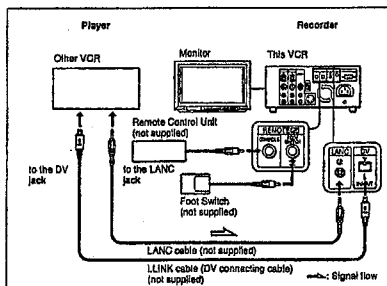
## Recording

This section describes the necessary connections, settings and operations to perform recording on this unit. The same settings and operations apply whether you are using the unit as part of an editing system, for dubbing, or as a stand-alone recorder.

### Connections for Recording

#### To digital video equipment with DV Jack

The video and audio signals are sent with hardly any degradation, enabling high-quality editing. The signal flow is automatically detected so you need not make separate connections for input and output.

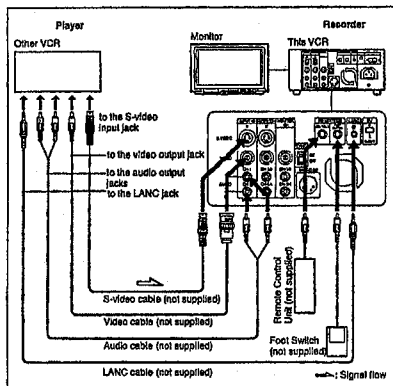


### Notes

- Audio signals are not output during playing at various speeds.
- With the DV connection, the sound is recorded in the same audio recording mode as that of the source tape. To record in a different audio recording mode from the source tape, use the INPUT ◀ connectors instead.
- With the DV connection, tape information (recording date, camcorder data, etc.) recorded on the source tape is transmitted from the other VCR (player). As a result, when you play back a recorded tape and press the DATA CODE button, the same tape information recorded on the source tape is displayed on the monitor screen. However, contents of the cassette memory are not transmitted. In addition, the time code is newly recorded on the tape on this VCR, except when copying a tape in Duplicate mode.
- As for the LANC connection, see "Notes for LANC connection" on the next page.

## Recording

### To video equipment without DV jack



#### Notes

- When recording the analog input signals, this VCR can digitally output the signals from the DV $\frac{1}{2}$  jack for backup. Set DV $\frac{1}{2}$  OUT in the menu to ON (see page 34).
- When you connect output jacks of this VCR to input jacks of the player, select the input correctly to prevent a humming noise.
- Distorted signals (e.g., when played back at a speed other than normal) will not be recorded properly.
- The indications displayed on the monitor screen are output only via the MONITOR  $\phi$ -connector.

#### Notes for LANC connection

- With the LANC connection, refer to the instruction for use supplied with the player VCR.
- The LANC connection transmits signals such as control signals, time code and time counter data and status data.
- If the other VCR has a LANC  $\phi$  jack of 5-pin DIN type, connect with the VK-810 Control L connecting cable (not supplied).
- The jacks labeled CONTROL L has the same function as LANC  $\phi$  jacks. The jacks labeled REMOTE on other equipment may also have the same.
- This VCR (recorder) receives the time code data from the LANC  $\phi$  jack only when the other VCR (player) is set to show the time code indications.
- With the LANC connection, this VCR only works as a slave unit.

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## Settings for Recording

### Preparation on the recorder (this VCR)

#### Notes

- Before recording, set the clock on the VCR so that the recording time can be written into the index signal. You can set the clock by setting the CLOCK SET menu (see page 34).
- When controlling this unit from an editing controller or a personal computer connected to the RS-232C (2) connector, set the REMOTE/LOCAL switch to REMOTE. When not, set the switch to LOCAL (See page 9).
- Editing is not possible with a tape that is copyright protected.

- Power on the video monitor, then set the monitor's input according to the input signals from this unit.
- Set up the player to play back a tape.  
For details, see "Preparation on the player" on the next page.

- Power on this unit by pressing the  $\odot$  ON/STANDBY switch.

The ON/STANDBY lamp lights in green.

- Use the COUNTER SELECT selector to select the type of time data to be used.

Type of time data	Set the selector to
Count value of the time counter	COUNTER
Time code	TC

- Select the video and audio input signals to be recorded.

Press INPUT SELECT to select the desired signal. Each press of this button cycles through three video signal selection options: video, S-video, and DV input. Each selection is shown by a lit indicator in the display window.

#### Notes

Once you have started recording, you cannot change the input signal selection (except during recording pause mode).

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## Recording

- When using the line connections (INPUT  $\phi$  connectors), select the audio mode.

Select the desired mode by setting the AUDIO MODE menu.

Audio mode	Set the menu to
2-channel mode	Fs48k
4-channel mode	Fs32k

On how to use the menu, see Chapter 3 "Menu Settings."

#### Notes

- In the DVCAM format, there are two audio recording modes, with either two channels at 48 kHz or four channels at 32 kHz. It is not possible to select other modes (for example with four channels at 48 kHz).
- When recording in 4-channel mode on this VCR, audio signals are recorded only in channels 1/2.
- Once you have started recording, you cannot change the audio mode selection.

- Use the  $\triangle$  AUDIO INPUT LEVEL control knobs to adjust audio input levels.

Watching the audio level meter (see page 7), adjust the level so that the meter does not indicate higher values than 0 dB when the audio signal is at its maximum.

When the level exceeds 0 dB, sound distortion occurs.

#### Note

With the DV connection, the recorder VCR's AUDIO MODE (sound selection) and  $\triangle$  AUDIO INPUT LEVEL (audio balance adjustment) do not function.

### Preparation on the player

- Insert a source tape.
- If the player VCR has an EDIT switch, set it to ON.
- Turn off the on-screen display.
- Set the LANC mode to M.

#### Note

With the DV connection, the playback VCR's AUDIO MONITOR (sound selection) and AUDIO MIX BALANCE (audio balance adjustment) do not function on the source audio output through the DV  $\frac{1}{2}$  jack.

28<sup>08</sup> Chapter 2 Recording and Playback

## Recording Procedure

#### Notes

When controlling this unit from an editing controller or a personal computer connected to the RS-232C (2) connector, set the REMOTE/LOCAL switch to REMOTE. When not, set the switch to LOCAL (See page 9).

- After checking that the cassette's safety switch is set to write enabled position and the tape for slack, hold the cassette so that the tape window is facing upward, then insert it into this unit.

For details of the cassette's safety switch, see page 4. For details of checking the tape for slack, see page 5.

The cassette is automatically drawn into the unit and the tape is wound round the head drum. The tape is stationary while the head drum rotates.

- Press the playback button on the player.

This starts the player's playback operation.

- Press and hold  $\bullet$  REC, and press  $\blacktriangleright$  PLAY.

This starts the recorder's recording operation.

#### To stop recording

Press the  $\blacksquare$  STOP button.

### To record using the optional Foot Switch

- Press the pedal of the Foot Switch when the VCR is in stop mode.

The VCR starts recording.

- Press the pedal again.

The recording stops and the VCR goes into recording pause mode.

#### To stop recording

Press the  $\blacksquare$  STOP button on the VCR.

#### Notes

- You should set the REMOTE/LOCAL switch to REMOTE to prevent concurrent use of the foot switch and the front panel controls.
- The beginning of the recording (for about two seconds) cannot be made. If you immediately start recording, press the pedal twice to go into recording pause mode, then start recording.
- The Foot Switch must be conformed with Standard UL2601-1/EN60601-1.

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- The recording pause mode will be automatically released after five minutes to protect the tape, and the VCR goes into stop mode.
- The foot switch operation works even if the VCR is in any operation mode. To prevent accidental erasure of a recording, you should slide in the safety switch on the cassette so that the red portion becomes visible before you insert the cassette into this VCR.

## Duplicate

If you copy a source tape, using the DUP (duplicate) button on this VCR, you can copy the time code recorded on the source tape as they are. You can easily make a work tape having the same time codes as the source tape.

The duplicate function on this VCR works only when using a source tape recorded in DV CAM format and making DV connections.

- 1 Connect this VCR and the other (playback) VCR, using an i.LINK cable (DV connecting cable) (not supplied) and select DV with the INPUT SELECT selector on this VCR.
- 2 Locate the points where you want to start playback and recording.
- 3 Press ■ STOP on this VCR to stop the tape transport operation.
- 4 Press and hold DUP on this VCR, and press ► PLAY.

The DUP indicator flashes and this VCR enters into duplicate-standby mode.

## Notes

- If the other (playback) VCR has already started playback, the DUP indicator lights and duplicate starts immediately.
- If the other (playback) VCR is in the playback pause mode, duplicate starts immediately and this VCR continues to record a still picture and a certain time code.

- 5 Press the play button on the other VCR to start playback.

The DUP indicator lights and duplicate starts.

To adjust the point where duplicate starts  
In step 4 above, press and hold the DUP button instead of the ► PLAY button, and press the ■ PAUSE button. This VCR remains recording standby mode until you press the ■ PAUSE button again.  
After the other VCR starts playback, press the ■ PAUSE button at the point where you want to start duplicate.

To stop duplicate  
Press the ■ STOP button.

## Notes

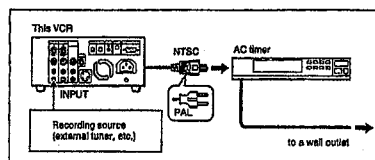
- During duplicate, do not change the speed of the player's tape or set it to pause mode. Otherwise, the time code of the recorded tape becomes out of sequence and you cannot use it for editing.
- During duplicate, time counter does not appear. Check it in the other VCR.
- When you start duplicating, the first part of the source tape may be dropped on the copied tape. Play back the source tape from the preceding point. You cannot completely copy the tape if the source tape is recorded from its beginning point.
- You may not be able to copy the first part or an unrecorded portion of the source tape. Locate the recorded portion on the source tape, then start copying.
- The recording does not stop the moment you press the ■ STOP button to stop editing. The source picture may be recorded a little longer than you expected.
- If you duplicate a tape by using two DSR-20MD/20MDPs, set DV EE OUT in the menu of the player to OFF (see page 34).
- The index signals are not recorded when the duplicate starts.
- If you set the REMOTE/LOCAL switch to REMOTE during duplicate, the tape stops.

## Recording

## AC timer recording

By connecting this VCR to an external AC timer (not supplied), you can start recording at a preset time.

- 1 Connect this VCR to an external AC timer (not supplied).



- 2 Insert a tape for recording.
- 3 Press INPUT SELECT to select the recording source.
- 4 Set the timer-on time on the connected AC timer.

At the preset time, the power of this VCR and the recording source turn on automatically and recording starts about several to 10 seconds later. Set the timer allowing a margin for the recording to start.

- 5 Set the TIMER selector at the front to REC.

You need not press ● REC.

If the tape ends before the recording source stops operation  
The tape stops without rewinding.  
If you set AUTO REWIND in the menu to ON, the tape rewinds to its beginning automatically (see page 34).

To stop recording during the timer recording  
Press the ■ STOP button.

To release AC timer recording  
Set the TIMER selector to OFF.

## Note

While a tape is running, do not turn off the power using an AC timer. The VCR and a tape may be damaged. When turning off the power of the VCR, make sure to press the ■ STOP button on this VCR first to stop the tape, then turn off the power.

## Changing Menu Settings

This VCR has various functions available, and you can set and check them on the monitor screen. Before operation, set the clock by setting the CLOCK SET menu.  
You can change the menu settings on the SET UP MENU screen. If necessary, change the settings manually during editing, etc.

## Changing the SET UP MENU Settings

Follow the instructions below to change the settings.

- 1 Press MENU.

The SET UP MENU appears on the monitor screen.  
To cancel the menu settings, press MENU again.



- 2 Press ◀/▶ to select the option you want to change, and press SET.

Each menu option appears on the monitor screen (see the table below).

- 3 Press ◀/▶ to change the setting, and press SET.

The menu disappears from the monitor screen.

## Menu Contents

Initial settings are indicated in bold letters.

Menu options	Set this option to	Description of settings
AUDIO MIX BALANCE		If you set the AUDIO MONITOR selector to MIX, you can select the precise balance between channels 1/2 and channels 3/4 by the steps.
AUDIO MODE	Fe49k Fa32k	<ul style="list-style-type: none"> <li>• To set the audio mode to 2-channel mode (16bit mode). This mode uses the whole audio area to record one stereo track. You can get higher sound quality.</li> <li>• To set the audio mode to 4-channel mode (12bit mode). This mode separates the audio area into two parts. You can record two kinds of audio, stereo 1 and stereo 2. When recording on this VCR, audio signals are recorded only in channels 1/2.</li> </ul>
JOG WITH SOUND	ON OFF	<ul style="list-style-type: none"> <li>• To listen to the sound when playing a tape in various speeds.</li> <li>• To turn off the sound when playing a tape in various speeds.</li> </ul>

## Menu Organization

Menu options	Set this option to	Description of settings
REMOTE CONTROL		Set the command mode (VTR1 to 6, INST) on this VCR. Change the setting when using infrared remote commander or external (remote) equipment to remotely control the unit. When using the supplied remote commander, select VTR4 (initial setting). When using the remote commander such as the optional DSRM-10 or SVRM-100A, select INST. When selecting OFF, you cannot remotely control the unit.
RS232C BAUD RATE	9600bps 19200bps	• To set the baud rate with an editing controller that supports RS-232C interface to 9600bps. • To set the baud rate to 19200bps.
DISPLAY POSITION	CENTER LOWER RIGHT	• To display the tape counter in the center of the monitor screen. • To display the tape counter in the lower right of the monitor screen.
CAUTION DISPLAY	ON OFF	• To display the alarm message on the monitor screen. • Not to display the alarm message.
BEEP	ON OFF	• To output a beep sound when an illogical operation is made. • To deactivate it.
INDEX WRITE	AUTO OFF	• To record index signals when recording begins. • Not to record index signals.
CASSETTE MEMORY SEARCH	AUTO OFF	• To search recordings with the cassette memory. If the tape does not have a cassette memory, the VCR will search recordings using index signals recorded on the tape itself. • To search recordings using the index signals recorded on the tape.
CASSETTE MEMORY ERASE	ALL DATA INDEX DATA DATE DATA PHOTO DATA	• To erase all the data in the cassette memory. • To erase index data in the cassette memory. • To erase date data in the cassette memory. • To erase photo data in the cassette memory. <b>NOTE</b> When using the cassette whose memory can store over 16 Kbits of data, you can only select ALL DATA. You cannot erase index data on the tape.
TIME CODE (DSR-20MD only)	AUTO NDF DF	• To set the time code to the same one as already recorded on the tape. • To set the time code to Non Drop Frame. • To set the time code to Drop Frame. <b>NOTE</b> If you use AUTO and start recording at the beginning of the tape, the time code is set to Non Drop Frame.
AUTO OFF	ON OFF	• To turn off the VCR automatically if there is no operation for an hour during stop mode (Auto Off). • To deactivate Auto Off.
AUTO REWIND	ON OFF	• To rewind the tape to its beginning automatically if the tape reaches to an end (Auto Rewind). • To deactivate Auto Rewind.
PHOTO PB	FIELD FRAME	• To prevent the picture from blurring when playing a tape recorded in photo mode. • To see clear picture when playing a still picture. <b>NOTE</b> When using FRAME, the picture recorded in photo mode may blur.
CLOCK SET		Set the clock on this VCR so that the recording time can be written into the index signal. Using $\frac{1}{2}$ and SET buttons, set the date and time.
HOURS METER		The digital hours meter keeps cumulative counts of the head drum rotation time and the number of unthreading operations. These counts can be displayed on the monitor screen and are unresettable. • The cumulative total hours of drum rotation with tape threaded is displayed in 10-hour increments. • The cumulative number of tape unthreading operation is displayed in 10-operation increments.
DV EE OUT	ON OFF	• To output the selected line input signals from the DV $\frac{1}{2}$ jack. • To output only playback video and audio signals from the DV $\frac{1}{2}$ jack.

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## Alarm Messages

Various messages appear on the monitor screen ("Err" appears in the display window). Check them with the following list.

Message	Meaning / Remedy
PLEASE CONFIRM THE SAFETY SWITCH OF THE CASSETTE	Check that the protect tab is slid in so that the red portion visible. → Slide back the safety switch (see page 4).
NO CASSETTE MEMORY	You try to erase cassette memory when there is no cassette memory.
VCR IS RECORDING	You press a certain operation button during recording or editing.
PLEASE INSERT A NEW CASSETTE	Though no cassette is inserted in the cassette compartment, you press $\rightarrow$ PLAY, etc. → Insert a cassette.
THE TAPE IS REWOUND	You press $\leftarrow$ REW at the beginning of the tape.
PLEASE REWIND OR INSERT A NEW CASSETTE	You try to start playback or recording at the tape end. → Rewind the tape or insert a new cassette.
PLEASE SET THE CLOCK	When turning on the power, the clock has not been set. → Set the clock in the menu (see page 34).
THIS PROGRAM IS COPYRIGHT PROTECTED	You try to dub the tape on which copyright protect signals are recorded.
CASSETTE MEMORY IS TOO LARGE TO ERASE	You try to erase "INDEX DATA," "DATE DATA," or "PHOTO DATA" on a tape having more than 16 Kbits memory capacity. → Erase "ALL DATA" on the tape (see page 34).
WRITING ON CASSETTE MEMORY, PLEASE WAIT	You do certain operation while the VCR is writing on cassette memory. → Operate after writing on cassette memory is complete.
VCR IS IN DUP MODE	You press a certain operation button during duplicate.

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## Troubleshooting

If the VCR does not function or functions incorrectly, check the following.

Symptom	Cause / Remedy
The power cannot be turned on.	The power plug is disconnected. → Connect the plug.
The unit will not operate even if the power has been turned on.	• The REMOTE/LOCAL switch is set to REMOTE. → Set it to LOCAL (See page 8). • Moisture condensation occurs. → Turn off the power and disconnect the power plug. After about one minute, connect the plug and turn on the power. → Wait for about one hour with the power turned on. • The cassette is not inserted straight. → Insert it straight.
The unit cannot be controlled using buttons on the unit.	The REMOTE/LOCAL switch is set to REMOTE. → Set it to LOCAL (See page 8).
The cassette cannot be ejected.	The REMOTE/LOCAL switch is set to REMOTE. → Set it to LOCAL (See page 8).
The cassette cannot be inserted, or it is ejected promptly.	• There is moisture condensation on the head drum. → Wait for about an hour. • The cassette is not inserted straight. → Insert it straight.
No picture.	The video heads are dirty. → Clean the video heads using the cleaning cassette.
Noise appears on the screen.	• A damaged cassette is inserted. → Insert other cassette. • The video heads are dirty. → Clean the video heads using cleaning cassette.
No picture via the DV jack.	Reconnect an i.LINK cable (DV connecting cable) (not supplied).
The audio is noisy.	A damaged cassette is inserted. → Insert other cassette.
The playback automatically starts when the power is turned on.	The TIMER selector is set to REPEAT. → Set it to OFF (See page 9).
The recording automatically starts when the power is turned on.	The TIMER selector is set to REC. → Set it to OFF (See page 9).
The remote commander does not function.	The batteries are dead. → Replace the batteries. Something is blocking the infrared rays. → Remove the obstacle. The command mode is wrong. → Set up REMOTE CONTROL in the SET UP MENU (See page 34).
The menu does not appear.	Connect the video monitor to the MONITOR G- connector.

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## Notes on Use

## Notes on the video cassette recorder

Do not install the unit in a place subject to direct sunlight or heat sources  
If you do, its cabinet, mechanical parts, etc., may be damaged.

Do not install the unit in an extremely hot place  
If the unit is left in a car parked with its windows closed (especially in summer), its cabinet may be damaged or it may not work correctly.

If the unit is brought directly from a cold to a warm location  
Moisture may condense inside the unit and cause damage to the video head and tape. If you use the unit in a place subject to direct cold currents from an air conditioner, moisture may also condense inside the unit.

Do not place a heavy objects on the unit  
The cabinet may be damaged, or the VCR may not work correctly.

Do not handle the recorder roughly  
Avoid rough handling or mechanical shock.

To avoid damaging the cabinet finish  
Plastic is often used for the surface finishing of the recorder. Do not spray a volatile solvent such as an insecticide toward the cabinet or place rubber or vinyl products on the cabinet for a long time. If you do, the finish of the cabinet may be damaged or the coating may come off.

Do not clean the cabinet with thinner or benzine  
The cabinet may be damaged or its coating may come off. When you use a chemical-impregnated cloth, use it according to its directions.

Clean the cabinet with soft dry cloth  
When the cabinet is very dirty, clean it with a soft dry cloth lightly moistened with a mild detergent solution and finish it with dry cloth.

Do not put magnetic objects close to the unit  
Magnetic fields may damage the recording.

Checking the video heads every 1000 hours  
A VCR is a high-precision piece of equipment that records and plays back the picture on a magnetic tape. In particular, the video head and other mechanical parts become dirty or worn. To maintain a clean picture, we recommend maintenance every 1000 hours, though the using condition may differ depending on temperature, humidity, dust, etc.

## Cleaning of the video heads

If the video heads are contaminated, the pictures cannot be recorded properly or the playback pictures become noisy. If the following phenomena occur, use the cleaning cassette PDVM-12CL (supplied) or PDV-12CL (not supplied) to clean the heads.  
• Square-shaped noise appears on the playback picture.  
• A part of the playback picture does not move.  
• The playback picture does not appear on the screen.

Symptoms caused by contaminated video heads



To use the cleaning cassette  
Refer to your cleaning cassette's operating instructions.

After prolonged use, the video heads may become worn out. If optimum picture quality is not restored even after you have cleaned the video heads with the cleaning cassette, the video heads may have worn out. In that case, you have to replace the video heads with new ones. Please consult your Sony dealer.

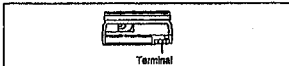
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## Notes on the video cassettes

## Cleaning the terminal

If the terminal of the Standard-DVCAM or Mini-DVCAM cassette gets dirty, or dust sticks to the terminal, the VCR may not work correctly.

Clean the terminal with the swab once every ten times you eject a cassette.



## When affixing a label on the cassette

Be sure to affix a label on only the correct location so as not to cause malfunction of the VCR.

## After using a cassette

After use, please be sure to rewind the tape completely (to prevent picture and sound distortion). Return it to its case and store in upright position.

## About moisture condensation

If the unit or tape is brought directly from a cold to a warm location, moisture may condense inside or outside the unit or tape. If you use the tape or video heads in this condition, the tape may adhere to the head drum, and the video heads or the tape may be damaged, or malfunction may occur.

Moisture condensation is likely to occur under the following conditions:

- The unit is brought from the cold outdoors to a warm indoor location.
- The unit is brought from the air-conditioned indoors to the hot outdoors.
- The unit is used in a place subject to cold currents from an air conditioner.

When bringing the unit from a cold place to a warm place or vice versa, put it in a plastic bag and seal the bag tightly. After bringing it into the new place, leave the bag on for about an hour, and remove the bag when the air temperature inside it has reached the temperature surrounding it.

## If moisture condensation occurred

You cannot operate the unit except to press **EJECT**. If you insert a cassette, it is ejected automatically. If this occurs, turn on the power, wait about an hour for the moisture to evaporate.

## Digital hours meter

The digital hours meter keeps cumulative counts of the head drum rotation time and the number of unthreading operations. These counts can be displayed on the monitor screen. Use them as guidelines for scheduling maintenance.

In general, consult your Sony dealer about necessary periodic maintenance checks.

The digital hours meter has the following two display modes and you can check them in the HOURS METER menu (see page 34).

## • DRUM ROTATION mode

The cumulative total hours of drum rotation with tape threaded is displayed in 10-hour increments.

## • THREADING mode

The cumulative number of tape unthreading operation is displayed in 10-operation increments.

## Self-diagnosis function

The unit is equipped with the self-diagnosis function that works to prevent the VCR from malfunctioning. A two-digit service number appears in the display window. In this case, check the following table.

Message	Symptom	Remedy
22	The video heads are dirty.	Clear the heads. (See page 38)
32	To prevent the unit from malfunctioning, the self-diagnosis function has worked.	<ul style="list-style-type: none"> <li>• Disconnect the power cord. After reinstalling the power source, operate the unit.</li> <li>• Remove the cassette or turn on/off the unit.</li> </ul>
21	Moisture condensation has occurred.	Remove the cassette and leave the unit for at least one hour.

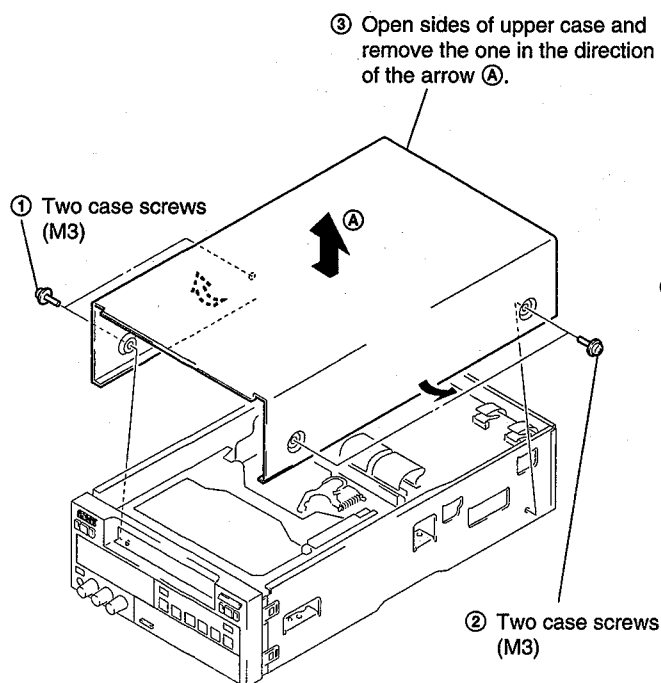
If you are unable to resolve the problem, contact your Sony dealer or local authorized Sony service facility and inform them of the number.



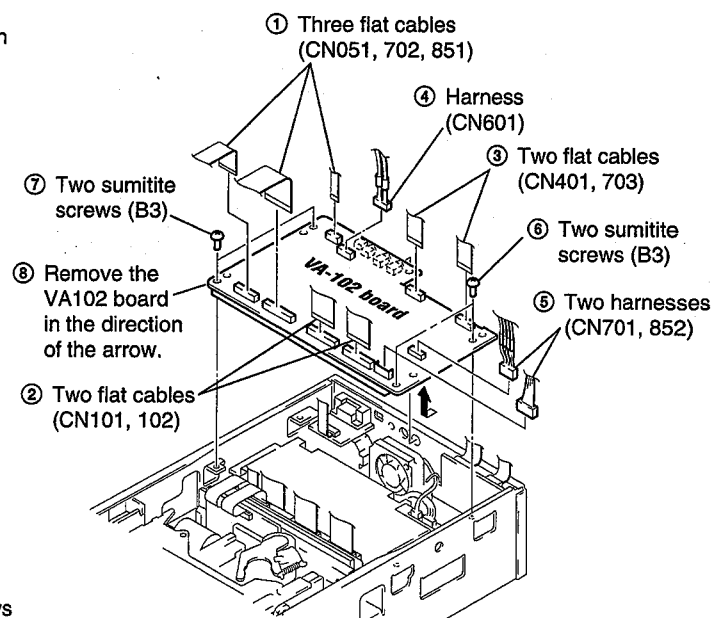
## SECTION 2 DISASSEMBLY

**Note:** Follow the disassembly procedure in the numerical order given.

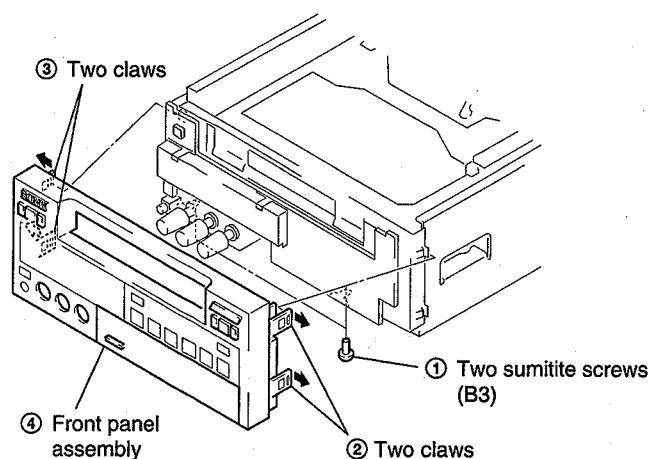
### 2-1. REMOVAL OF UPPER CASE



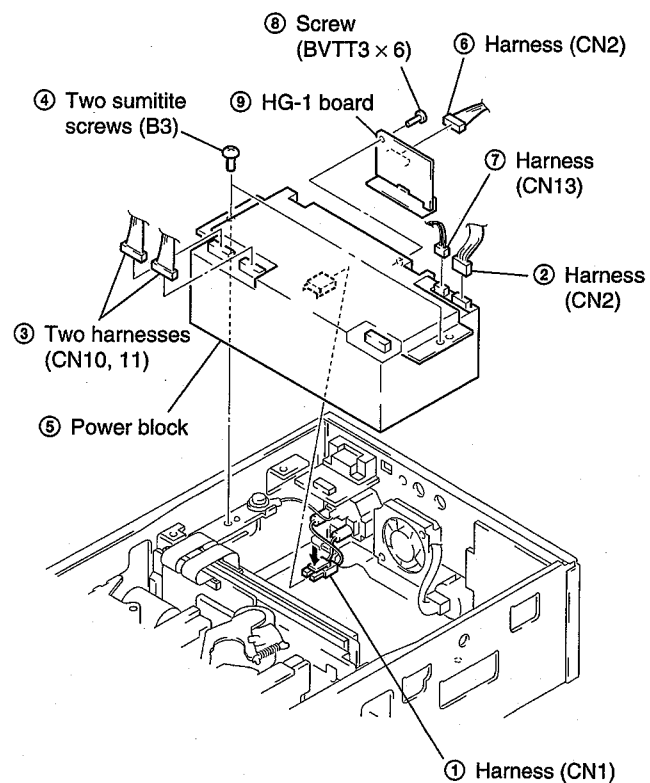
### 2-3. REMOVAL OF VA-102 BOARD



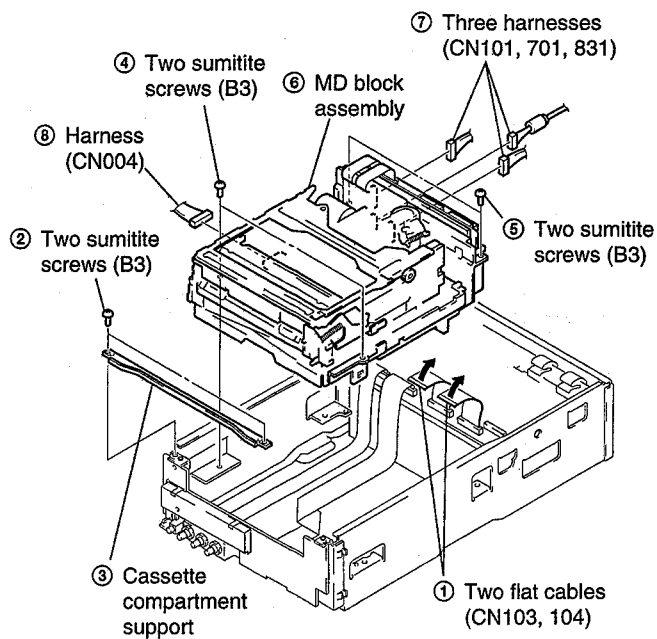
### 2-2. REMOVAL OF FRONT PANEL ASSEMBLY



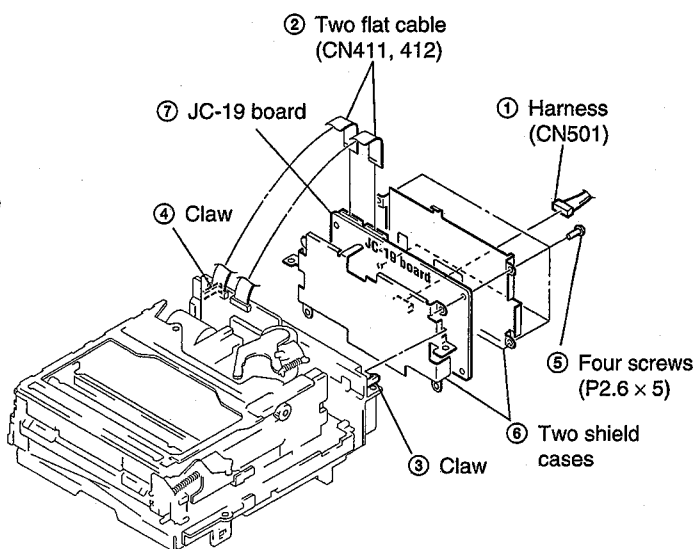
### 2-4. REMOVAL OF POWER BLOCK



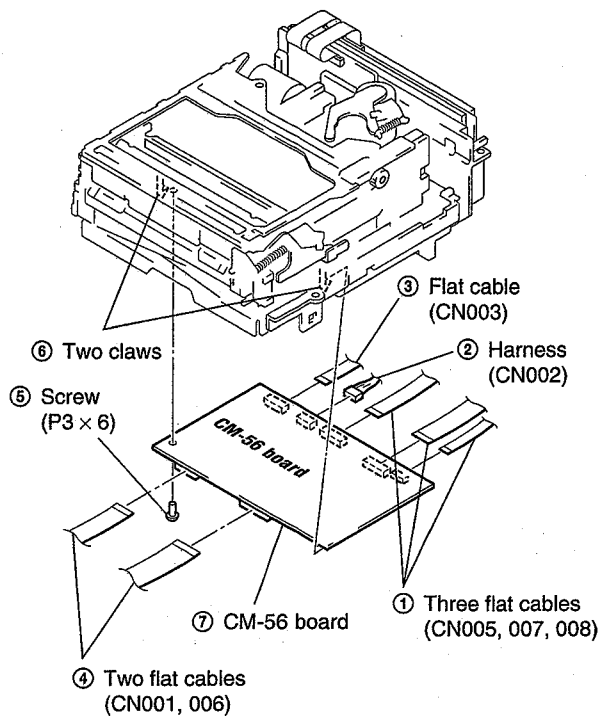
## 2-5. REMOVAL OF MD BLOCK ASSEMBLY



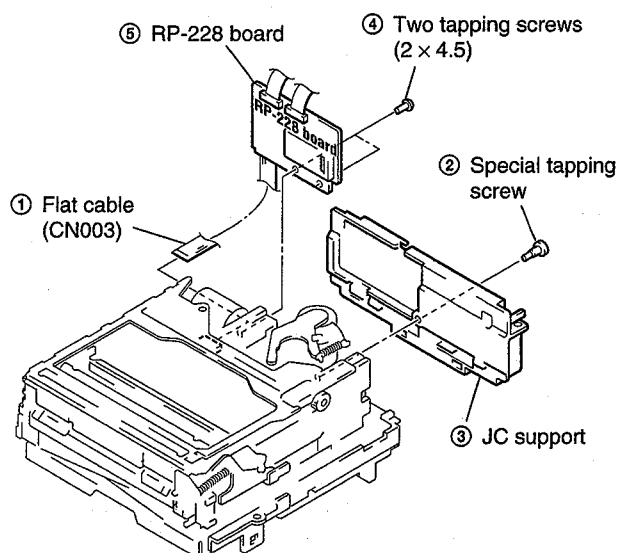
## 2-7. REMOVAL OF JC-19 BOARD



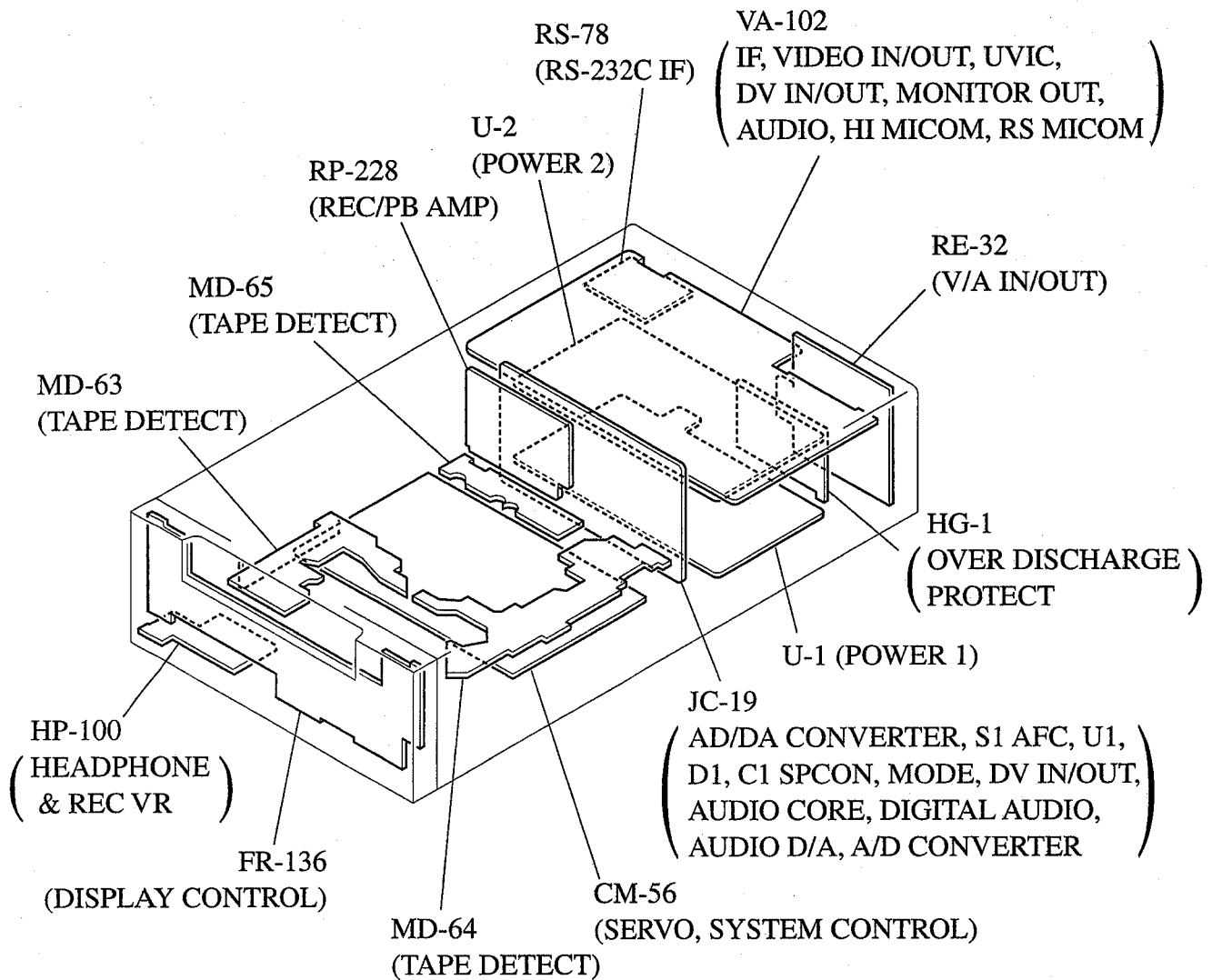
## 2-6. REMOVAL OF CM-56 BOARD



## 2-8. REMOVAL OF RP-228 BOARD



## 2-9. CIRCUIT BOARDS LOCATION



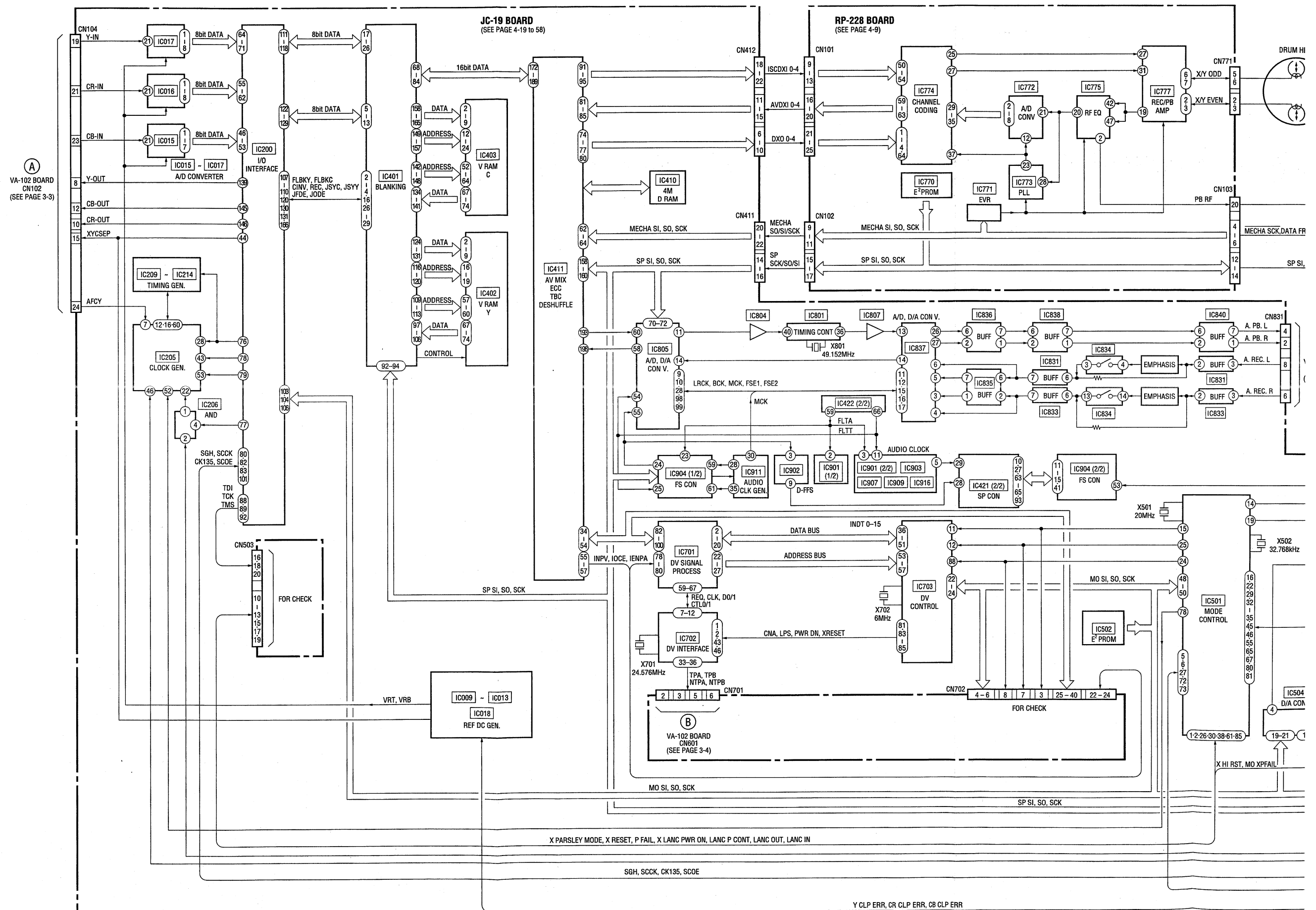


### 3-1. OVERALL BLOCK DIAGRAM 1





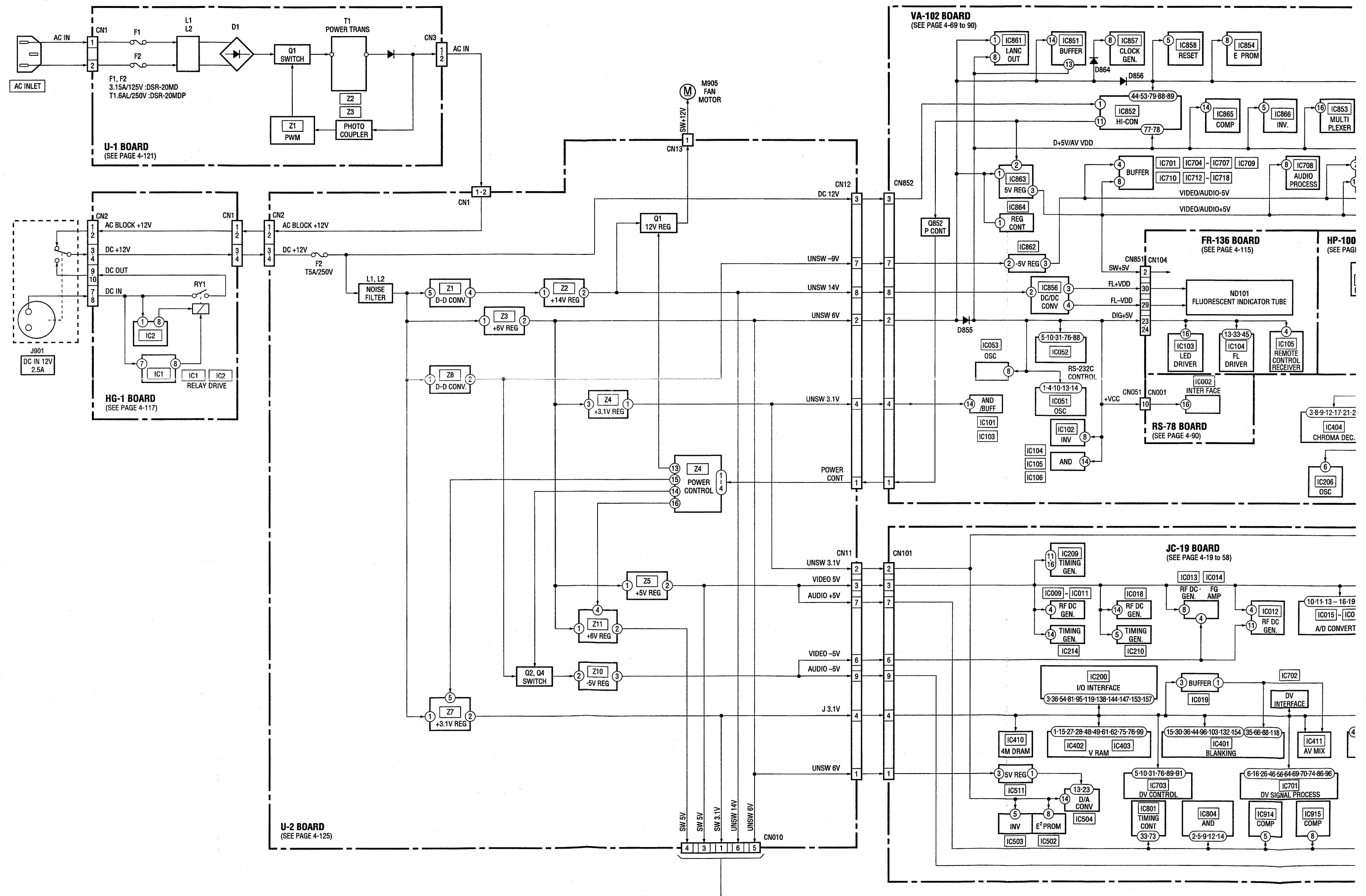
### 3-2. OVERALL BLOCK DIAGRAM 2

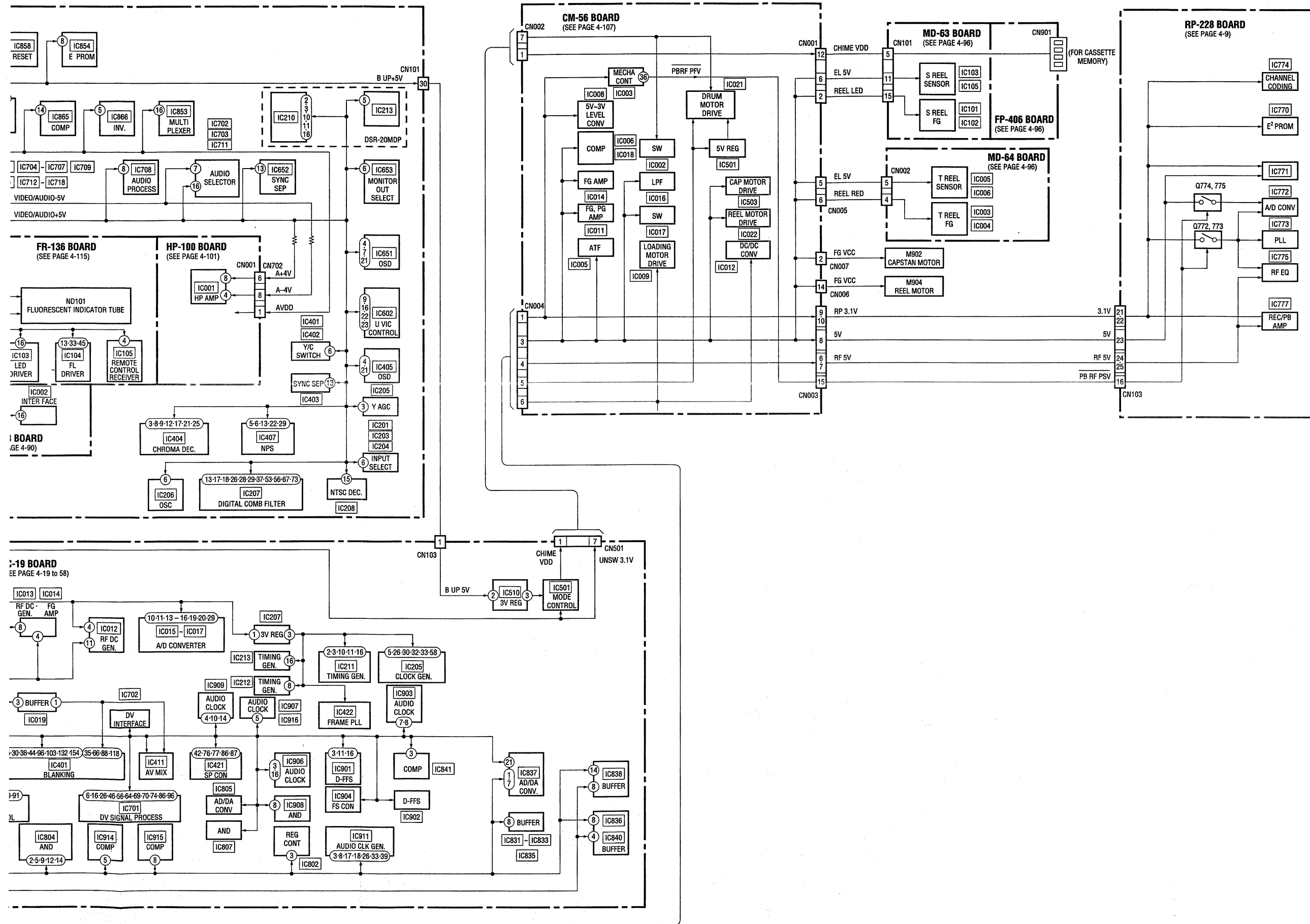






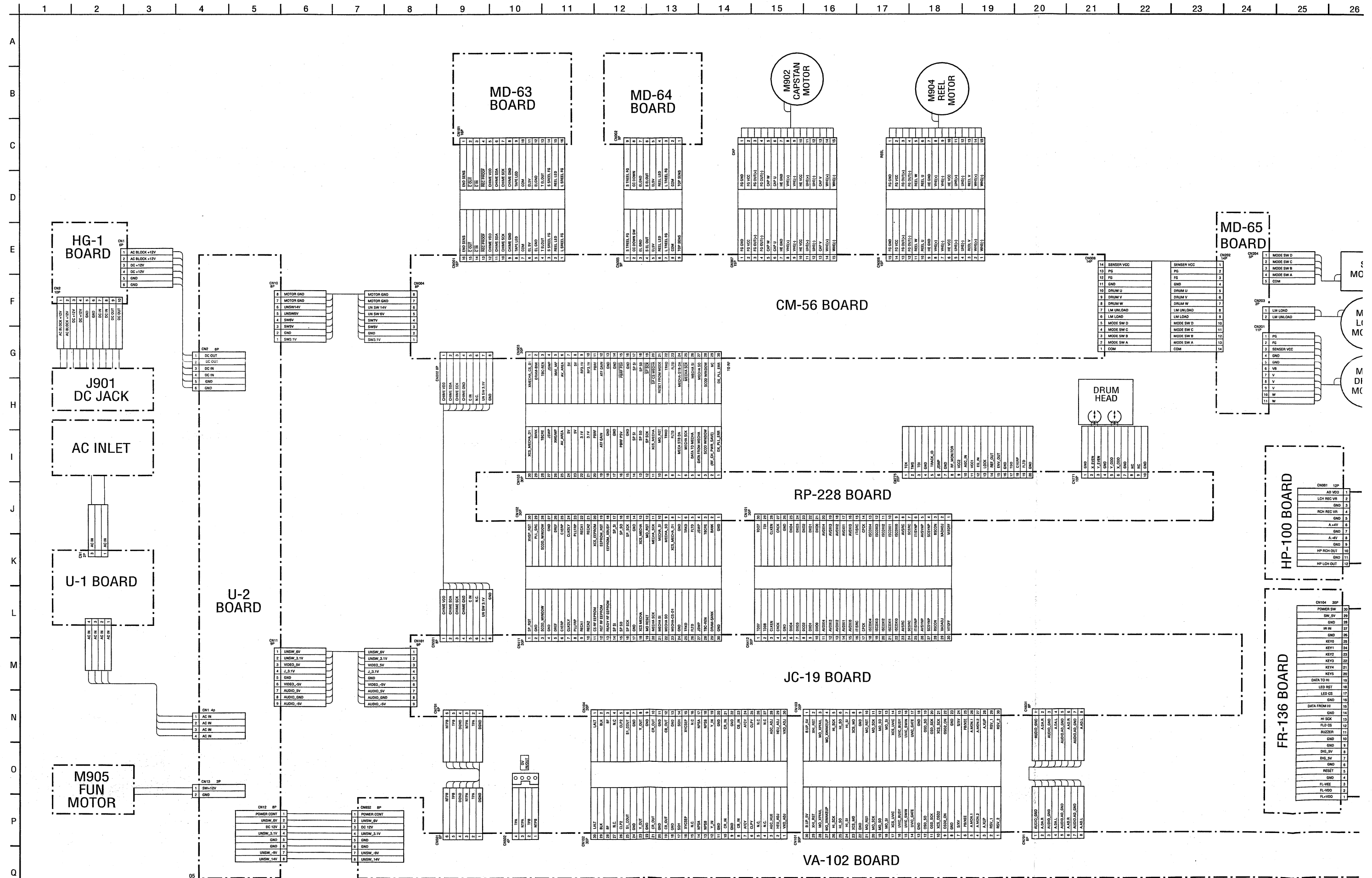
### 3-3. OVERALL BLOCK DIAGRAM 3





SECTION 4  
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM





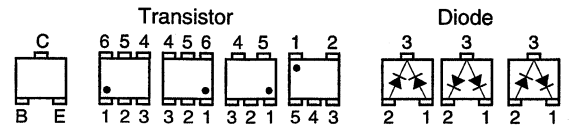


4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.  
(In addition to this, the necessary note is printed in each block)

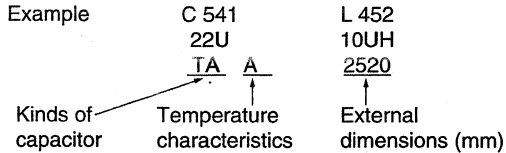
For printed wiring boards:

- Pattern from the side which enables seeing.  
(The other layers' pattern are not indicated)
- Circled numbers refer to waveforms.
- Through hole is omitted.
- There are few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.



For schematic Diagram:

- All capacitors are in  $\mu F$  unless otherwise noted.  $pF$ :  $\mu F$  50V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are  $\frac{1}{10} W$  unless otherwise noted.  $k\Omega$ : 1000 $\Omega$ ,  $M\Omega$ : 1000 $k\Omega$ .
- Caution when replacing chip parts.  
New parts must be attached after removal of chip.  
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- Some chip part will be indicated as follows.



- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used. In such cases, the unused circuits may be indicated.
- Parts with  $\star$  differ according to the model/destination. Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name  
XEDIT  $\rightarrow$  EDIT PB/XREC  $\rightarrow$  PB/REC
- nonflammable resistor.
- fusible resistor.
- panel designation.
- B+ Line.\*
- B- Line.\*
- IN/OUT direction of B line (+, -).\*
- adjustment for repair.\*
- Circled numbers refer to waveforms.\*

Measuring conditions voltage and waveform:

- Voltages and waveforms are measured between the measurement points and ground when color bar signal input. They are reference values and reference waveforms.\* (VOM of DC 10 M  $\Omega$  input impedance is used)
- Voltage values change depending upon input impedance of VOM used.
- \* Indicated by the color red.

**Note:**  
The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

**Note:**  
Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

RP-228 BOARD (SIDE A)

CN101	A-2
CN102	A-4
CN771	B-6
CN775	A-5
D772	A-1
D774	B-5
D775	C-5
IC770	C-1
IC771	D-3
IC772	B-1
IC775	B-3
IC777	C-5
Q105	C-2
Q109	B-3
Q774	A-1
Q775	A-1
Q776	B-2
Q777	B-2
Q779	A-3
Q784	B-3

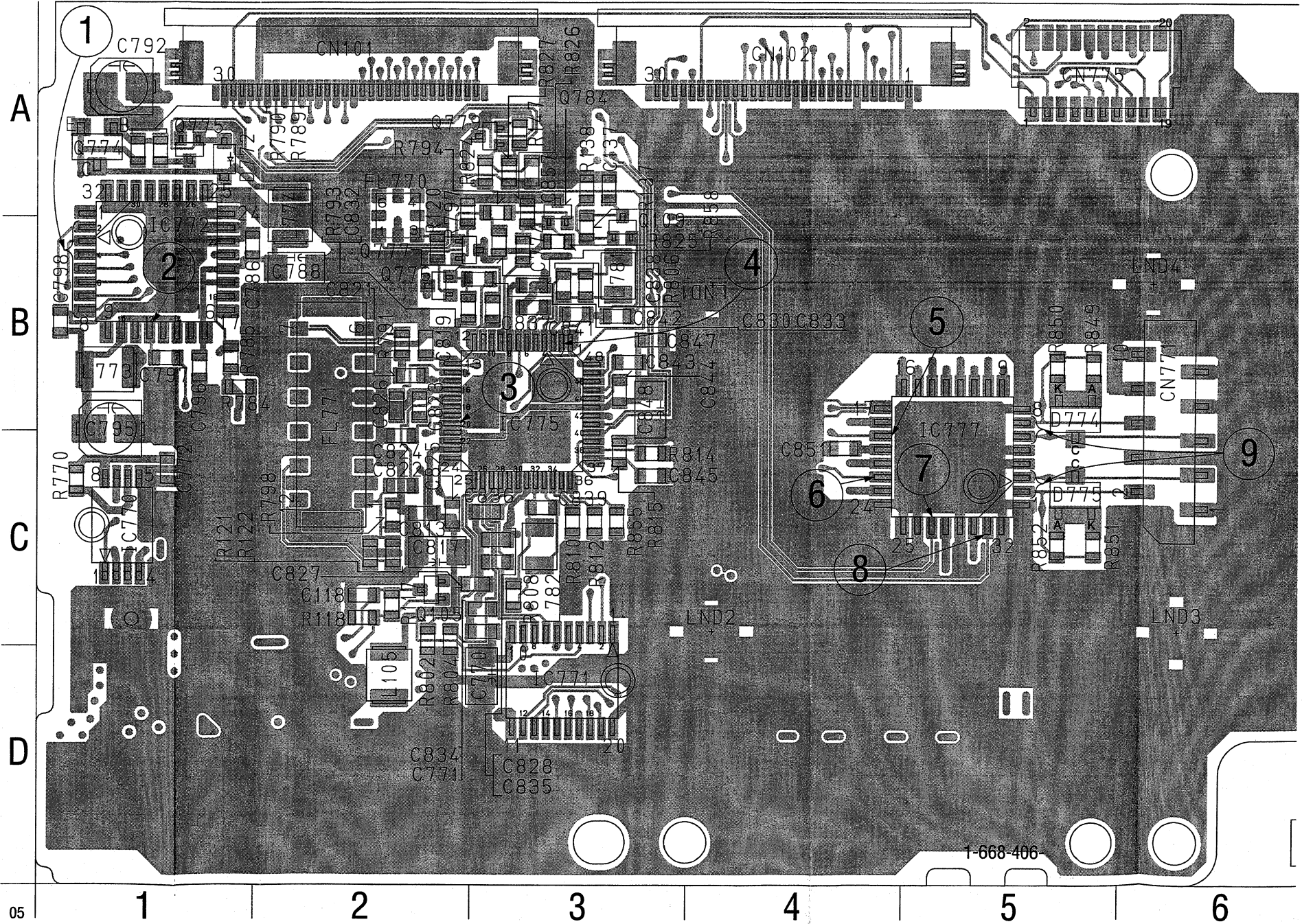
RP-228 (REC/PB AMP) PRINTED WIRING BOARD

- Ref. No.: RP-228 board; 3,000 series -

- For Printed Wiring
- RP-228 board is si of layers 2 to 5 hav
- There are few case is printed on this d
- Chip transistor

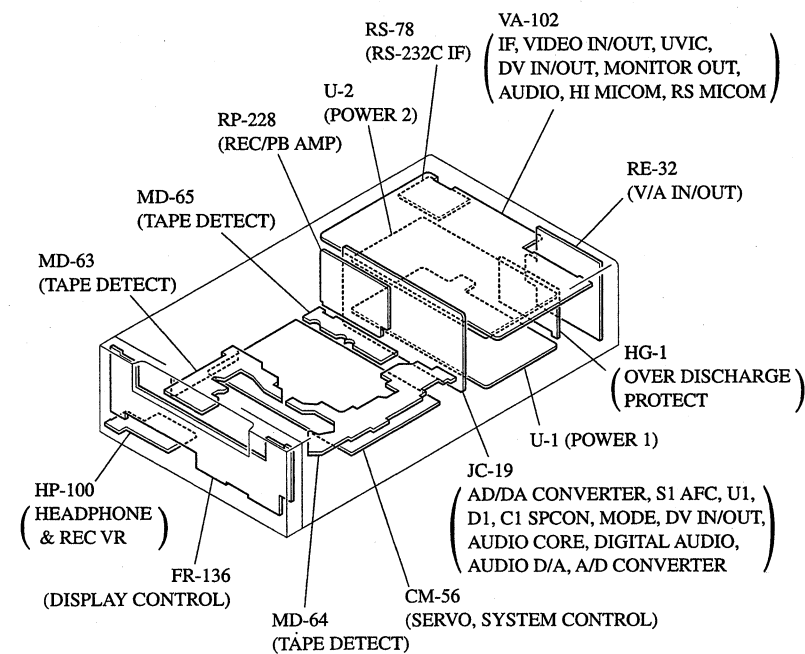


RP-228 BOARD (SIDE A)





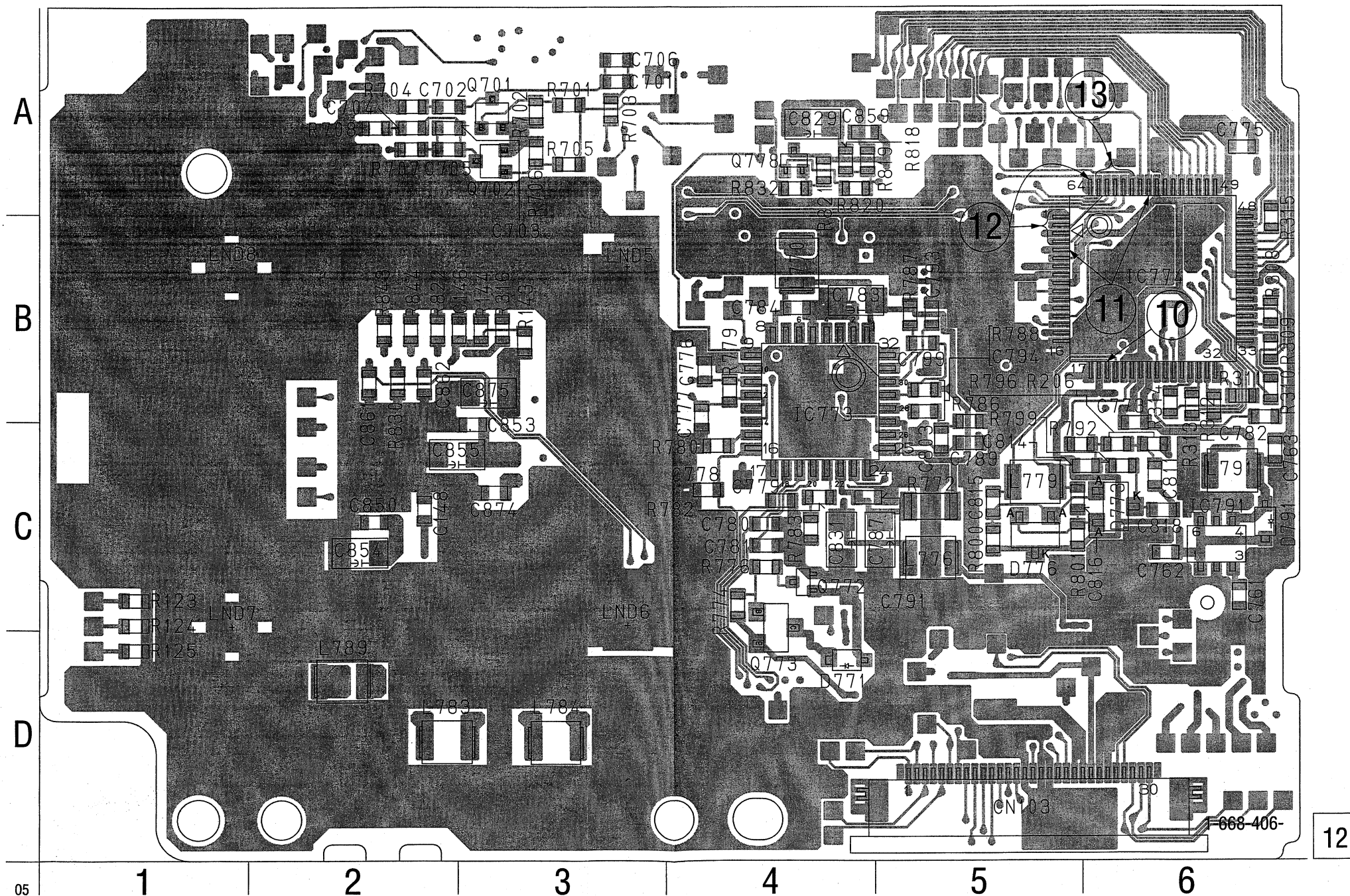
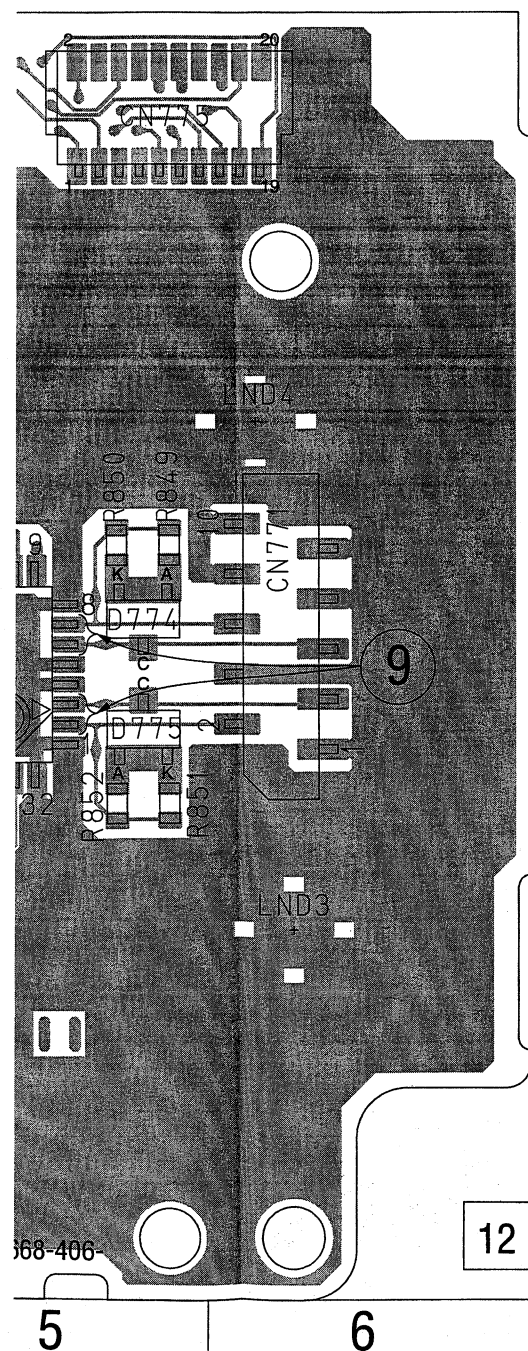
- **For Printed Wiring Board.**
- RP-228 board is six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- There are few cases that the part isn't mounted in this model is printed on this diagram.
- Chip transistor

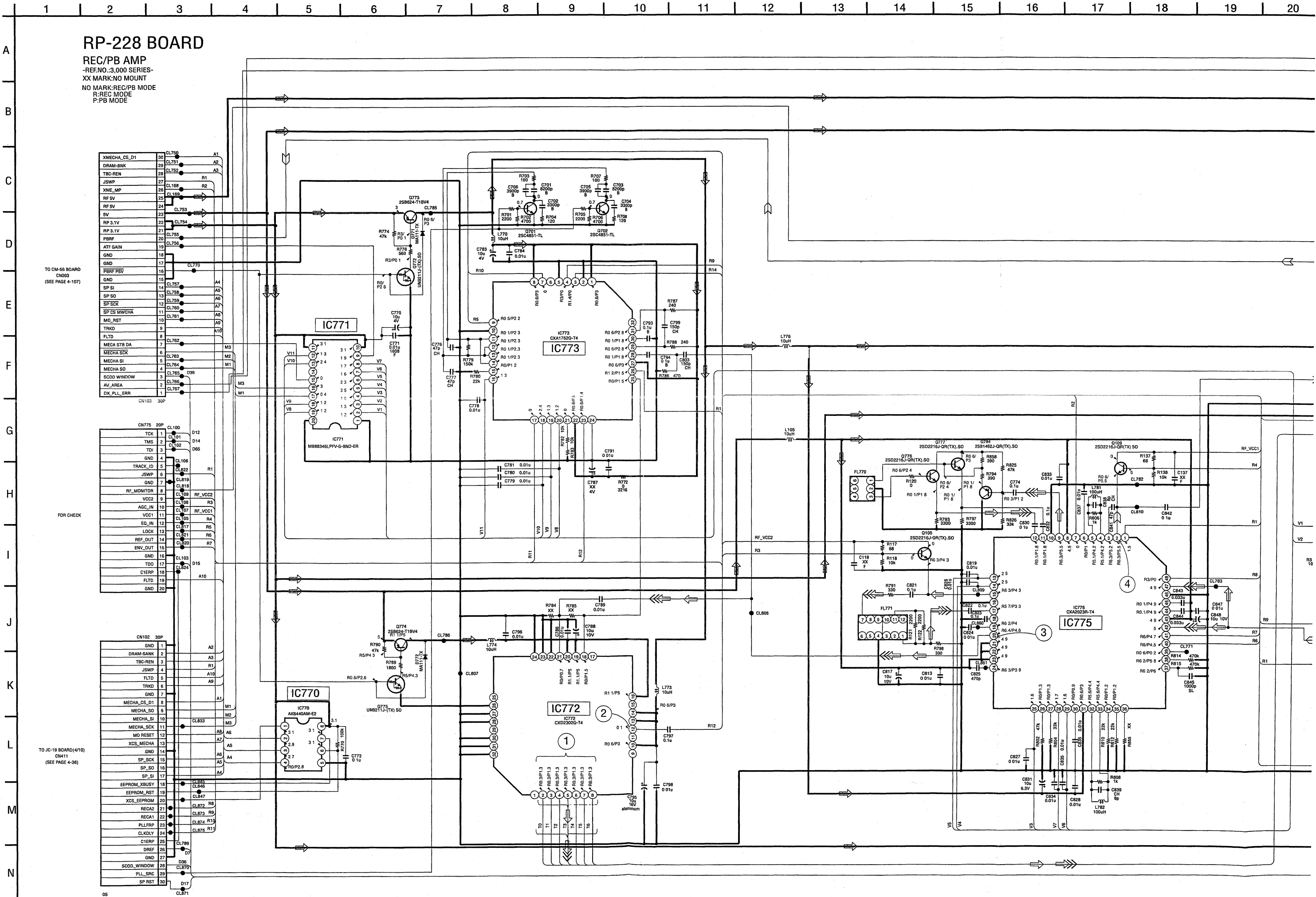


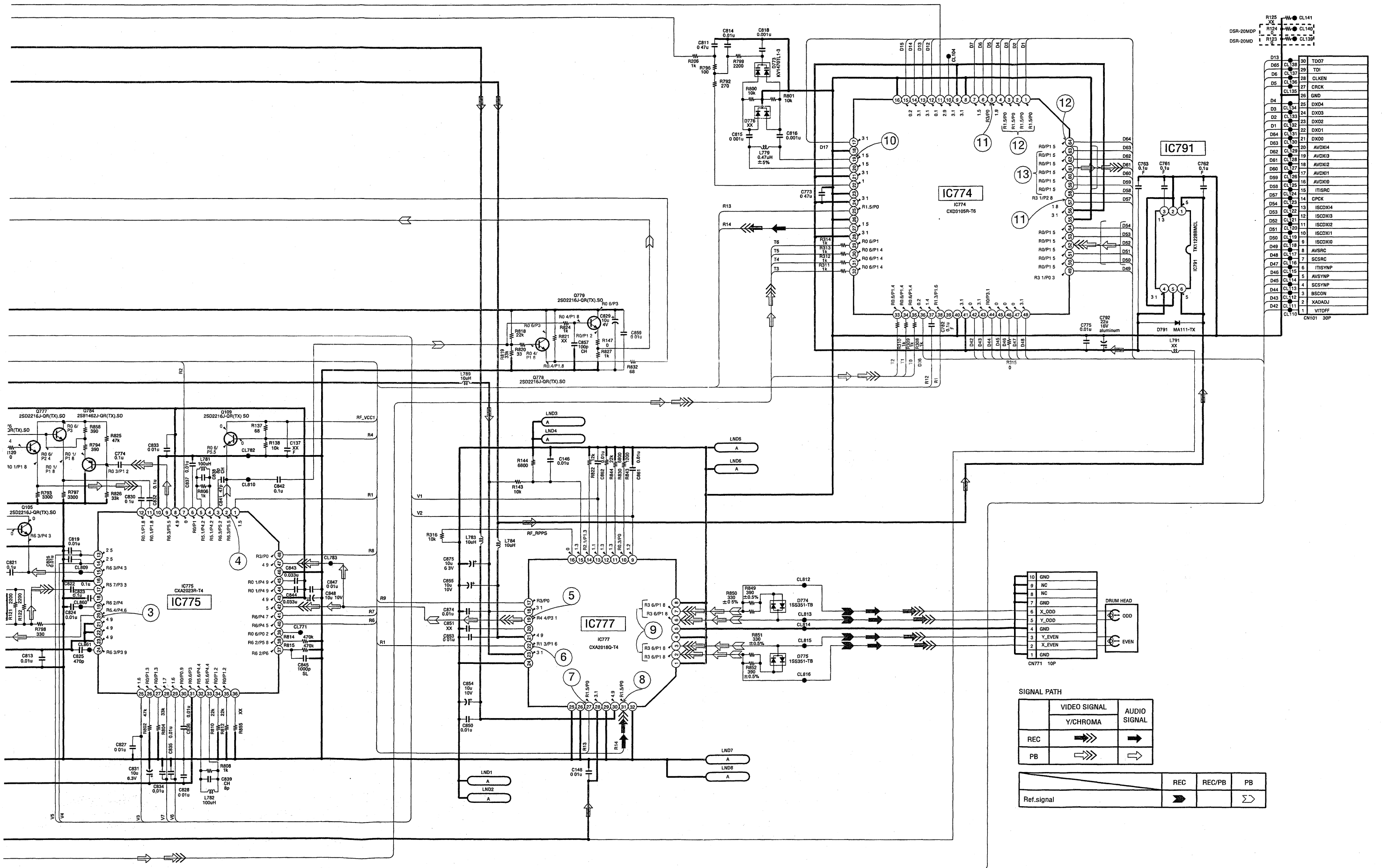
RP-228 BOARD  
(SIDE B)

CN103	D-5
D771	D-4
D773	C-6
IC773	B-4
IC774	B-6
Q701	A-3
Q702	A-3
Q772	C-4
Q773	D-4
Q778	A-4

RP-228 BOARD (SIDE B)

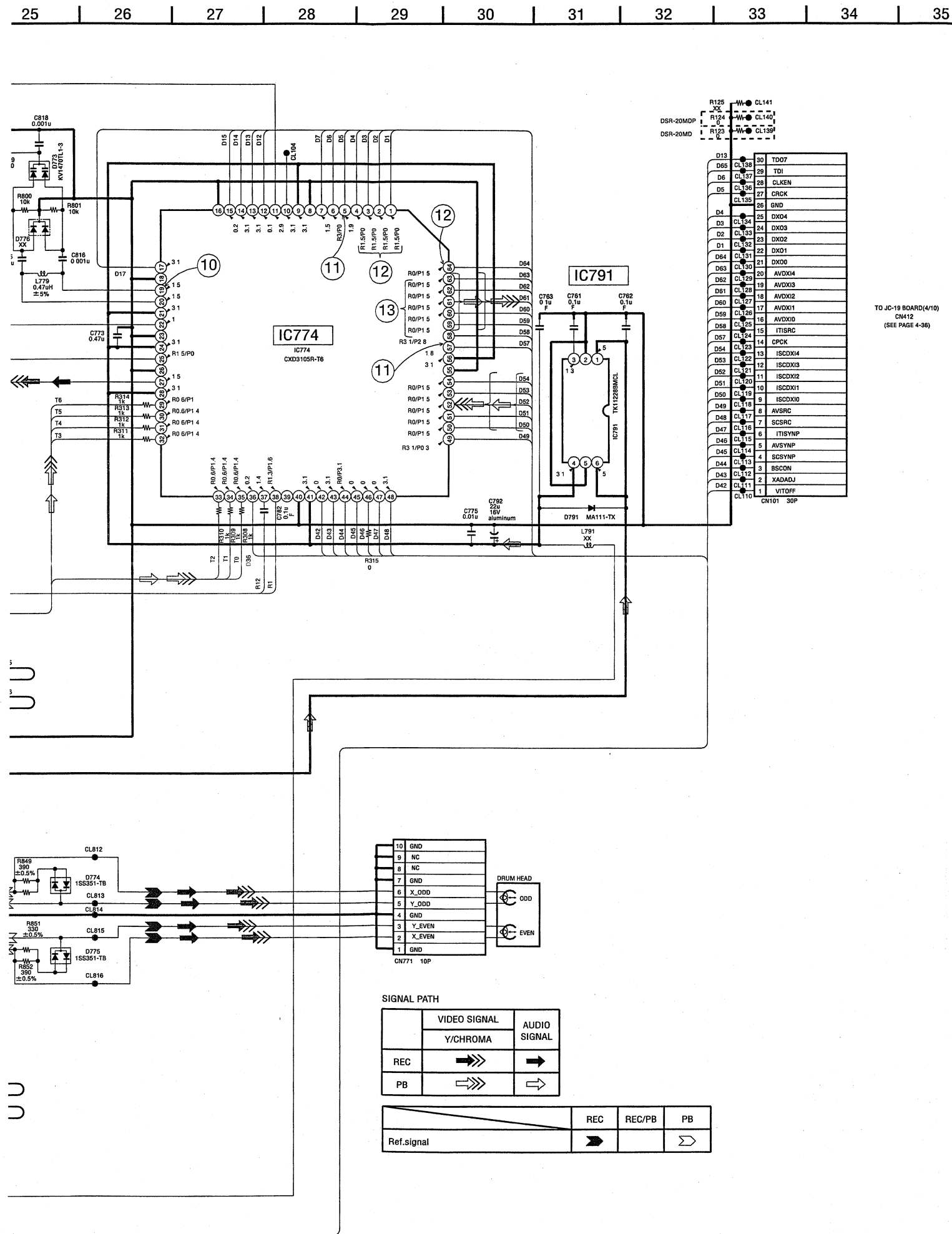




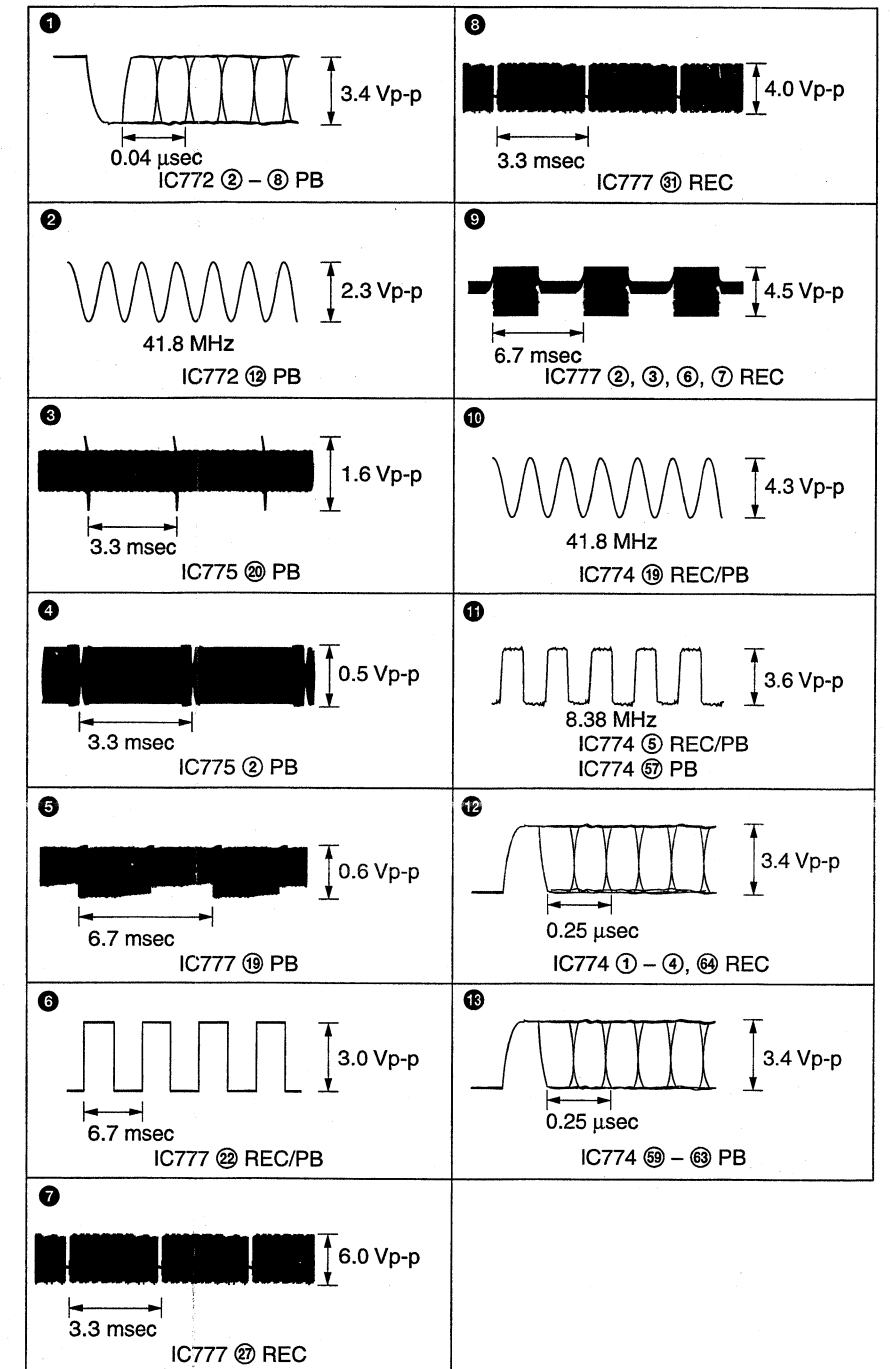


TO JC-19 BO  
CM411  
(SEE PAGE)





## RP-228 BOARD



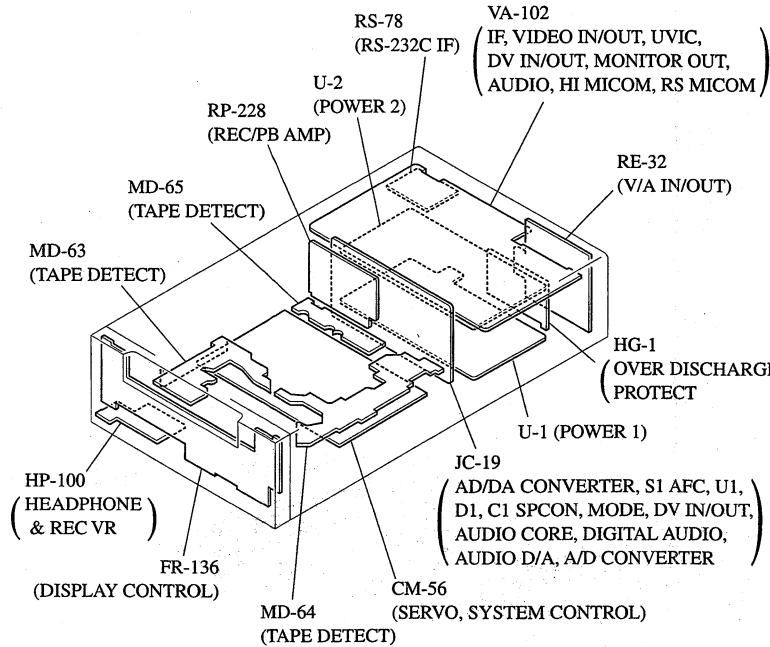
JC-19 (AD/DA CONVERTER, S1 AFC, U1, D1, C1 SPCON, MODE, DV IN/OUT, AUDIO CORE, DIGITAL AUDIO, AUDIO D/A, A/D CONVERTER) PRINTED WIRING BOARD  
- Ref. No.: JC-19 board; 2,000 series -

JC-19 BOARD (SIDE A)

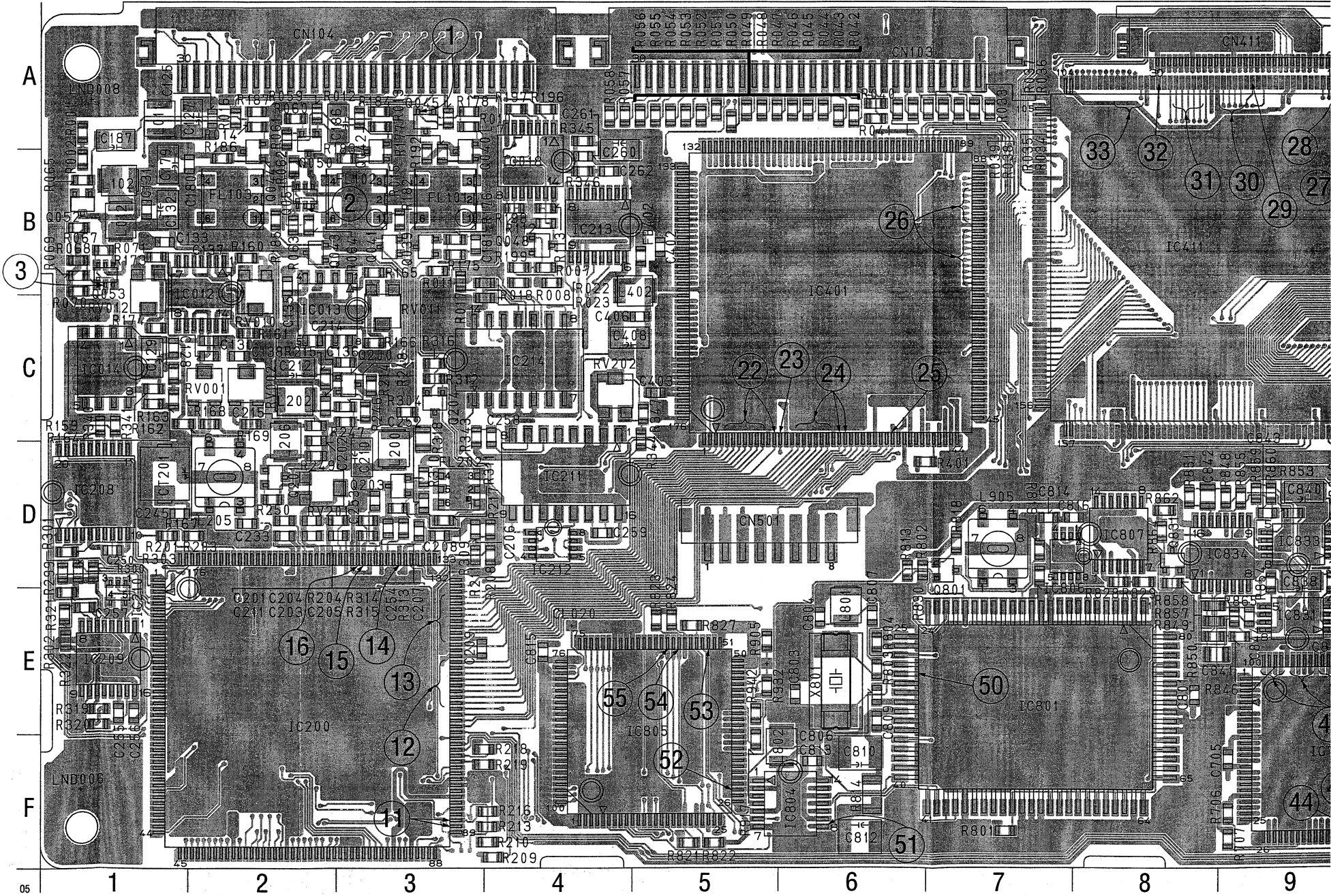
- CN103 A-6
- CN104 A-3
- CN411 A-9
- CN412 A-10
- CN501 D-5
- CN831 D-10

- IC012 C-2
- IC013 C-2
- IC014 C-1
- IC018 B-4
- IC019 C-11
- IC200 E-2
- IC209 E-1
- IC210 E-1
- IC211 D-4
- IC212 D-4
- IC213 B-4
- IC214 C-4
- IC401 B-6
- IC410 B-10
- IC411 B-8
- IC701 F-9
- IC702 E-10
- IC801 E-7
- IC804 F-6
- IC805 E-4
- IC807 D-8
- IC831 E-9
- IC833 D-9
- IC840 D-11

- Q039 B-3
- Q040 B-3
- Q041 B-3
- Q042 B-3
- Q043 B-2
- Q044 B-2
- Q045 A-3
- Q048 B-4
- Q050 A-2
- Q051 B-2
- Q052 B-1
- Q053 B-1
- Q200 C-3
- Q201 D-2
- Q801 D-7



JC-19 BOARD (SIDE A)





- 





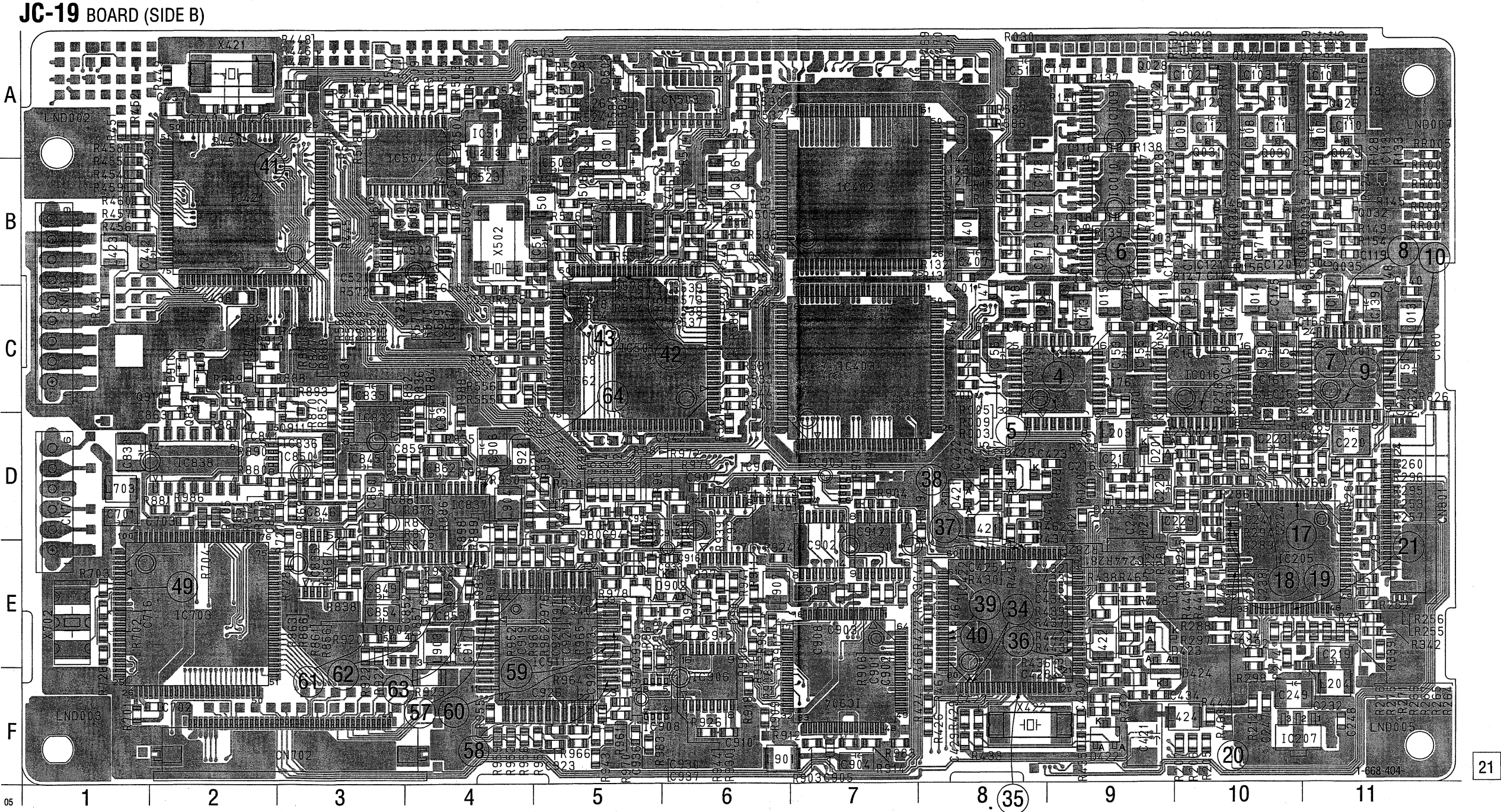
e patterns of  
ram.  
in this model

JC-19 BOARD (SIDE B)

CN101	B-1
CN503	A-6
CN701	D-1
D201	D-9
D421	D-8
D422	F-9
D423	E-9
D424	E-9
D425	D-8
D501	A-4
D503	A-5
D504	B-5
D901	E-6
D902	E-6
D903	C-2
D910	C-2

IC009	A-9
IC010	B-9
IC011	B-9
IC015	C-11
IC016	C-10
IC017	C-9
IC205	E-10
IC206	E-10
IC207	F-10
IC402	B-7
IC403	C-7
IC421	B-2
IC422	E-8
IC501	C-5
IC502	B-4
IC503	B-4
IC504	A-4
IC510	A-5
IC511	A-4
IC703	E-2
IC802	E-3
IC832	D-3
IC835	E-3
IC836	D-3
IC837	D-4
IC838	D-2
IC841	D-2
IC901	D-7
IC902	D-7
IC903	D-7
IC904	F-7
IC906	F-6
IC907	D-6
IC908	F-5
IC909	D-6
IC911	E-5
IC914	D-5
IC915	D-6
IC916	D-6

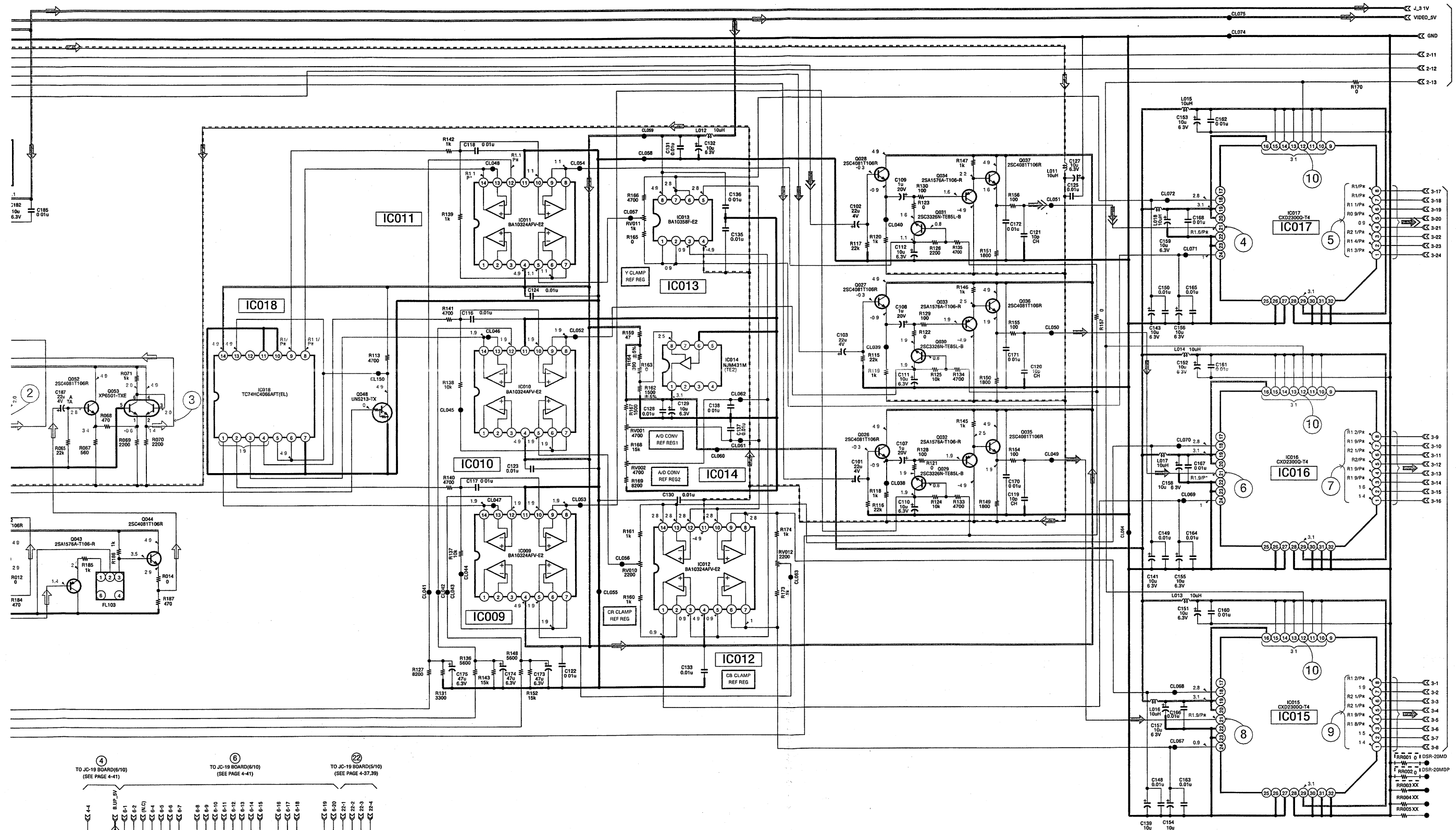
Q026	A-11
Q027	A-10
Q028	A-10
Q029	A-11
Q030	A-10
Q031	A-10
Q032	B-11
Q033	B-10
Q034	B-10
Q035	B-11
Q036	B-10
Q037	B-10
Q501	A-5
Q502	A-5
Q504	B-6
Q505	B-6
Q506	B-6
Q832	C-2
Q902	E-6
Q903	D-5
Q910	C-2
Q911	C-3



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----







② TO JC-19 BOARD(2/10)  
(SEE PAGE 4-25)

⑤ TO JC-19 BOARD(2/10)  
(SEE PAGE 4-25)

④ TO JC-19 BOARD(6/10)  
(SEE PAGE 4-41)

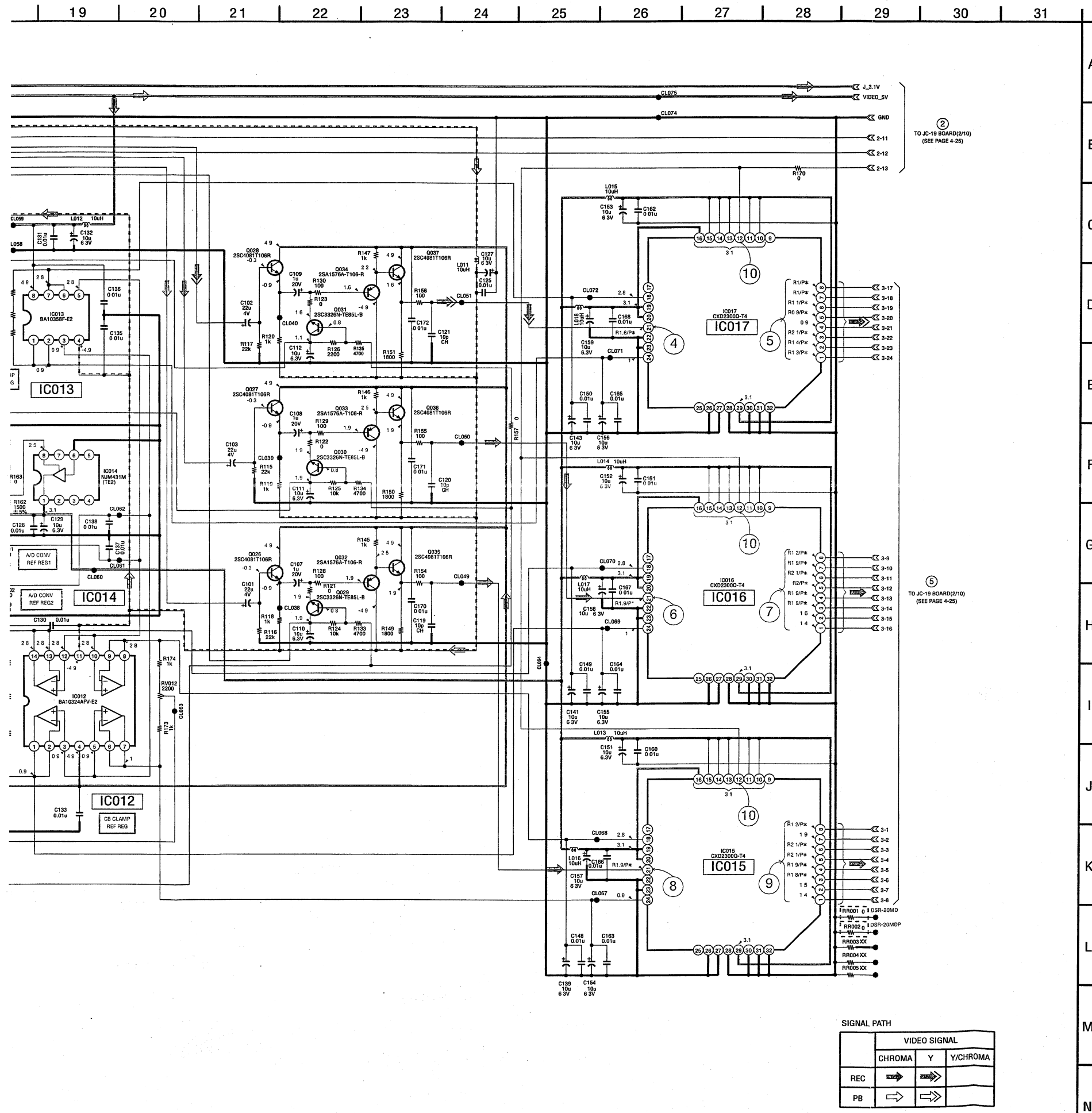
⑥ TO JC-19 BOARD(6/10)  
(SEE PAGE 4-41)

② TO JC-19 BOARD(5/10)  
(SEE PAGE 4-37,38)

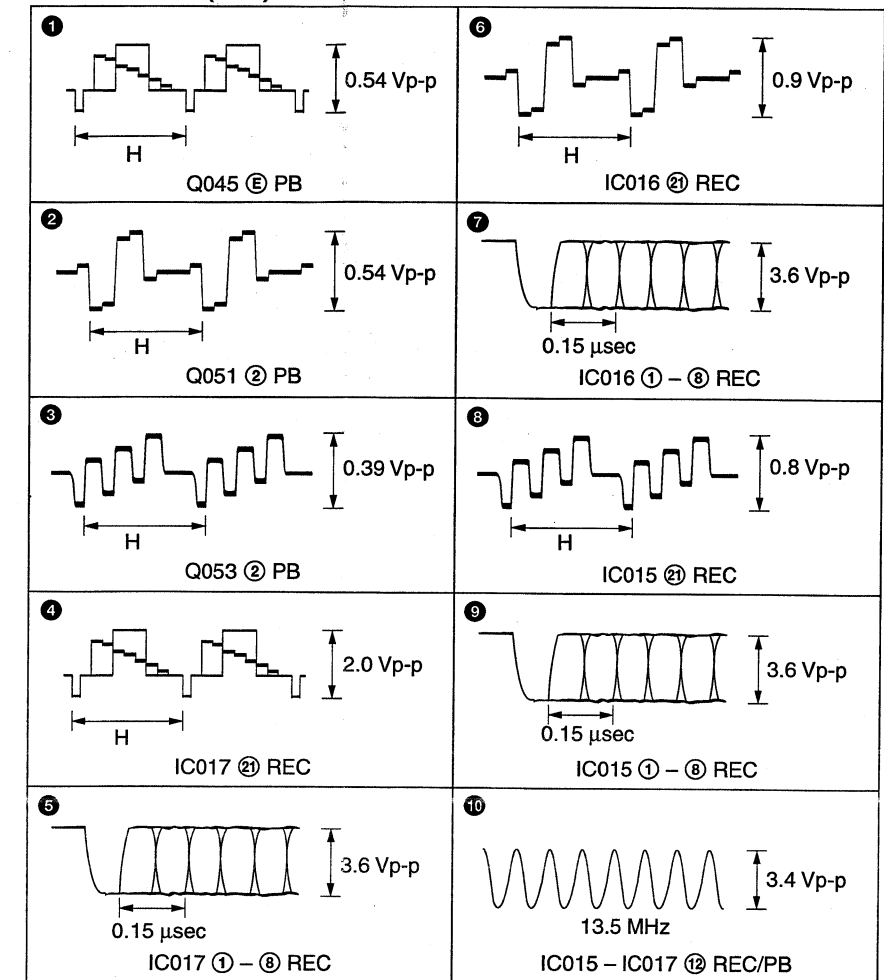
IC003	IC004	IC005	IC006	IC007	IC008	IC009	IC010	IC011	IC012	IC013	IC014	IC015	IC016	IC017	IC018
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17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112
113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128
129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144
145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176
177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192
193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208
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225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256
257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272
273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288
289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304
305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320
321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336
337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352
353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368
369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384
385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400

SIGNAL PATH

	CHROMA	Y	Y/CHROMA
REC	→	→	→
PB	→	→	→



JC-19 BOARD (1/10)

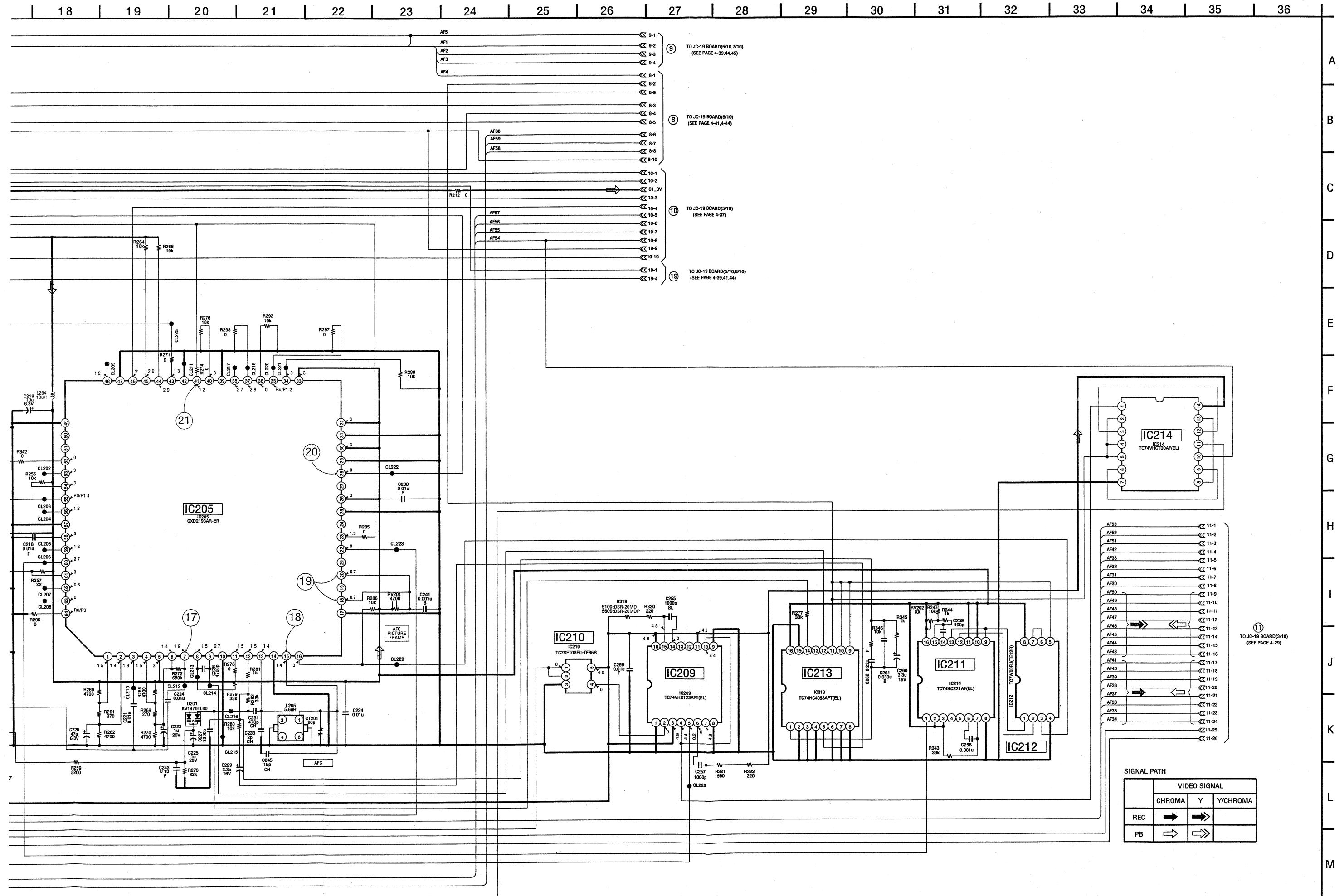


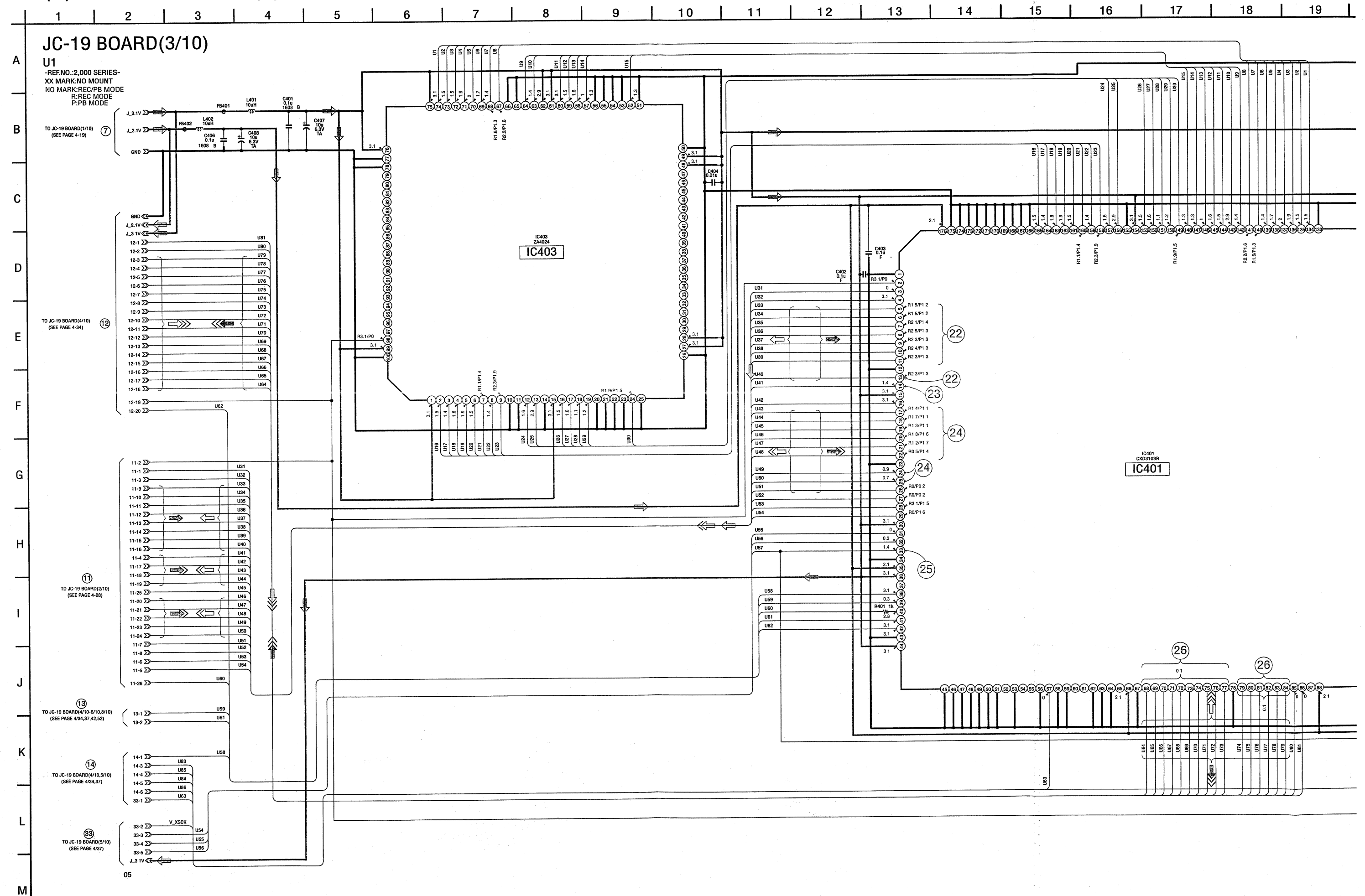


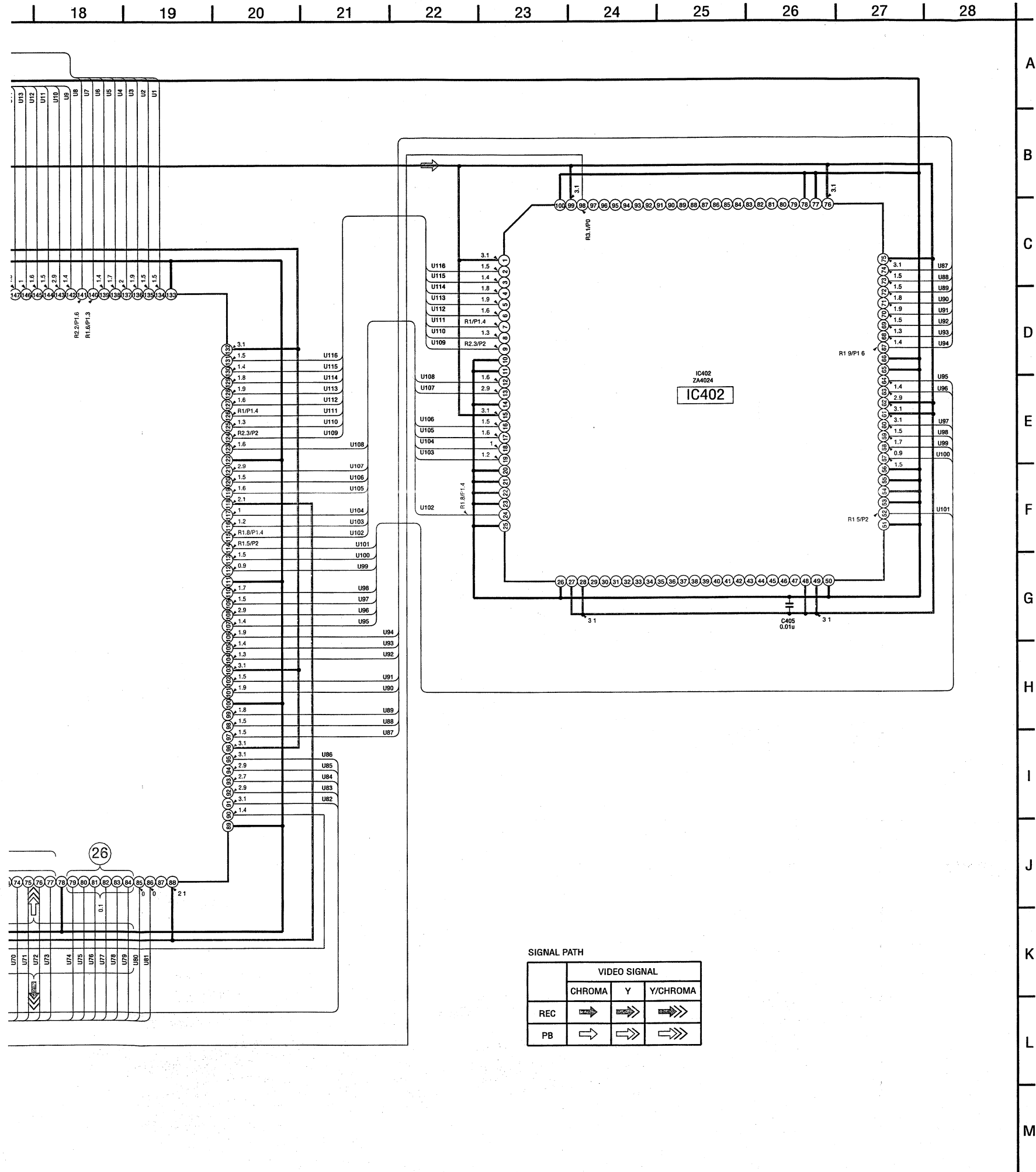


7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
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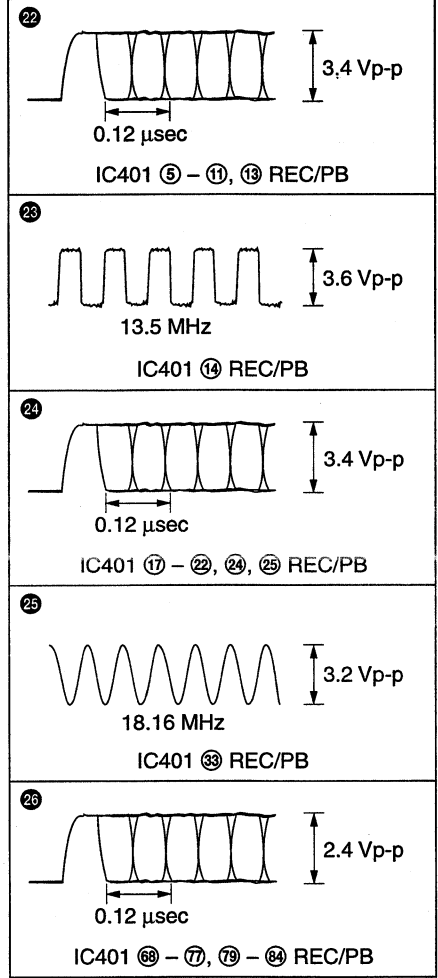




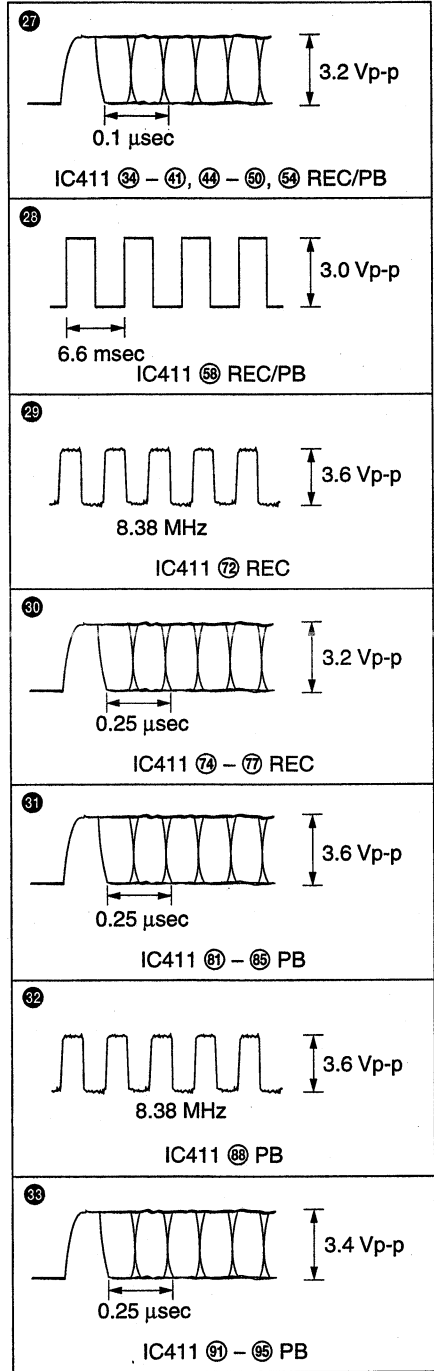




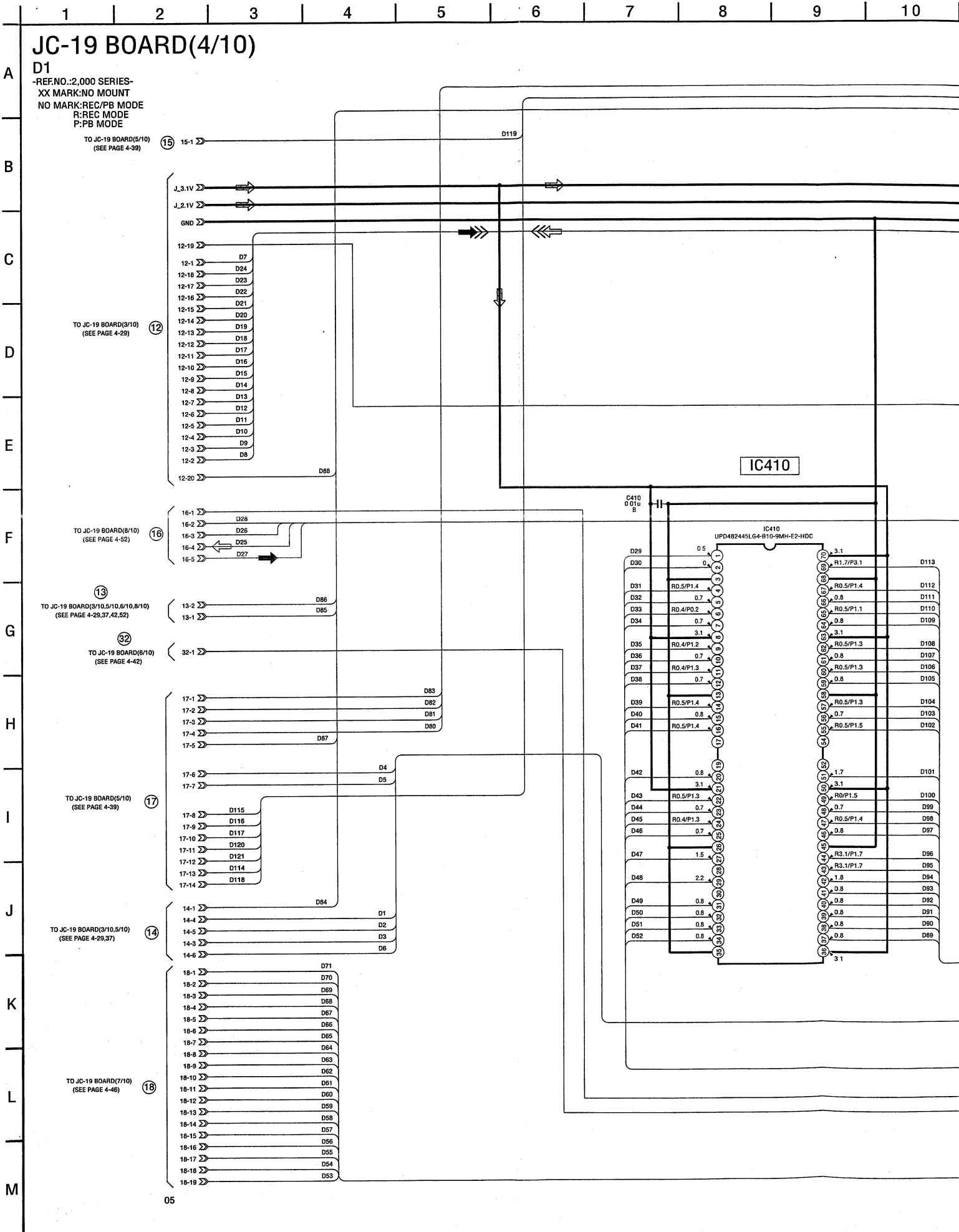
**JC-19 BOARD (3/10)**

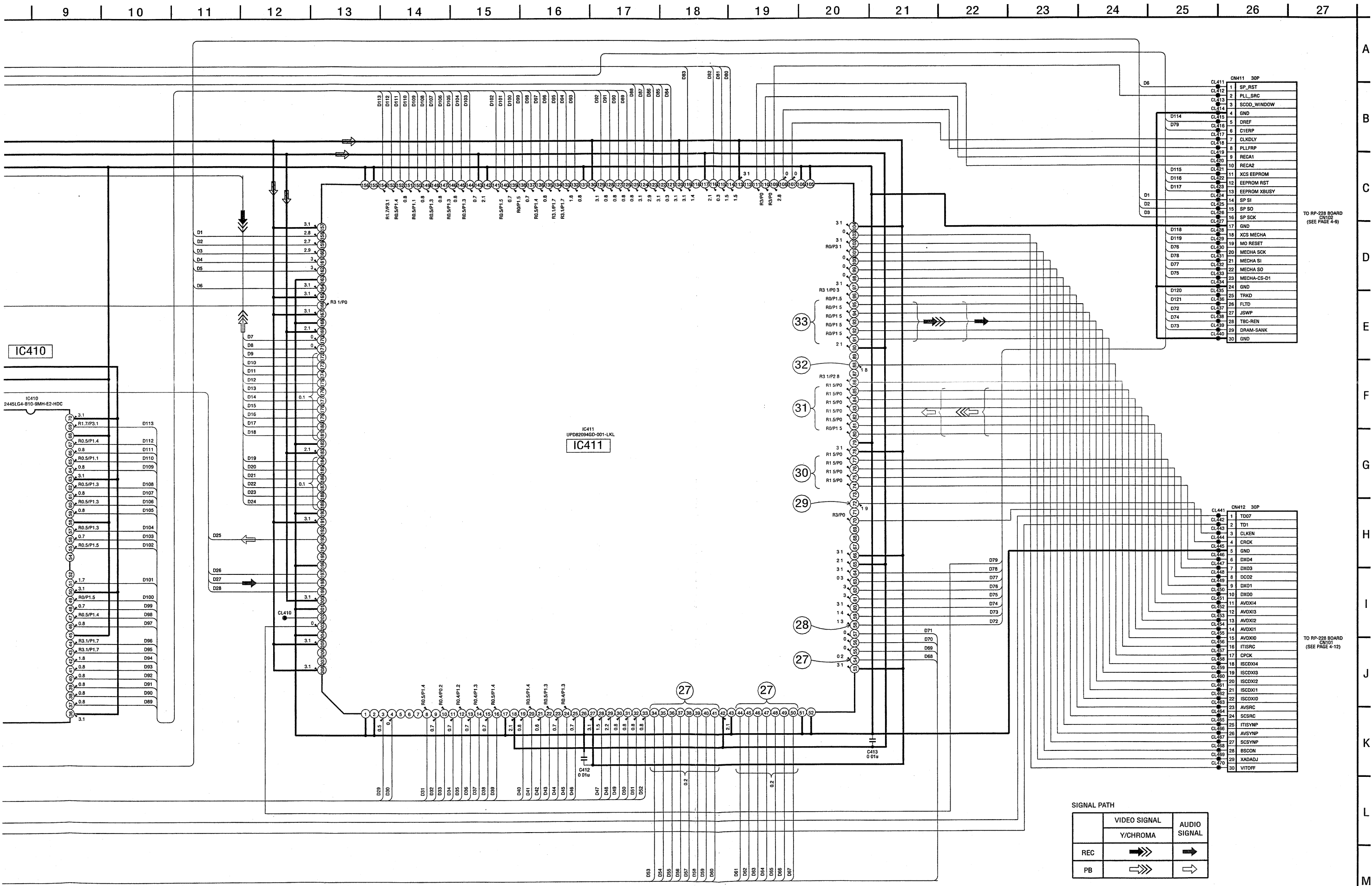


JC-19 BOARD (4/10)



JC-19 (D1) SCHEMATIC DIAGRAM • See page 4-14 for JC-19 printed wiring board.





CN411 30P	
1	SP_RST
2	PLL_SRC
3	SCDD_WINDOW
4	GND
5	DREF
6	C1ERP
7	CLKDLY
8	PLLFRP
9	RECA1
10	RECA2
11	XCS EEPROM
12	EEPROM_RST
13	EEPROM_XBUSY
14	SP_SI
15	SP_SO
16	SP_SCK
17	GND
18	XCS MECHA
19	MO RESET
20	MECHA_SCK
21	MECHA_SI
22	MECHA_SO
23	MECHA-CS-DI
24	GND
25	TRKD
26	FLTD
27	JSWP
28	TBC-REN
29	DRAM-SANK
30	GND

CN412 30P	
1	TD07
2	TD1
3	CLKEN
4	CRCK
5	GND
6	DX04
7	DX03
8	DC02
9	DX01
10	DX00
11	AVDX14
12	AVDX13
13	AVDX12
14	AVDX11
15	AVDX10
16	ITISRC
17	CPCCK
18	ISCDX14
19	ISCDX13
20	ISCDX12
21	ISCDX11
22	ISCDX10
23	AVSRC
24	SCSRC
25	ITISYMP
26	AVSYMP
27	SCSYMP
28	ESCON
29	XADADJ
30	VITOFF

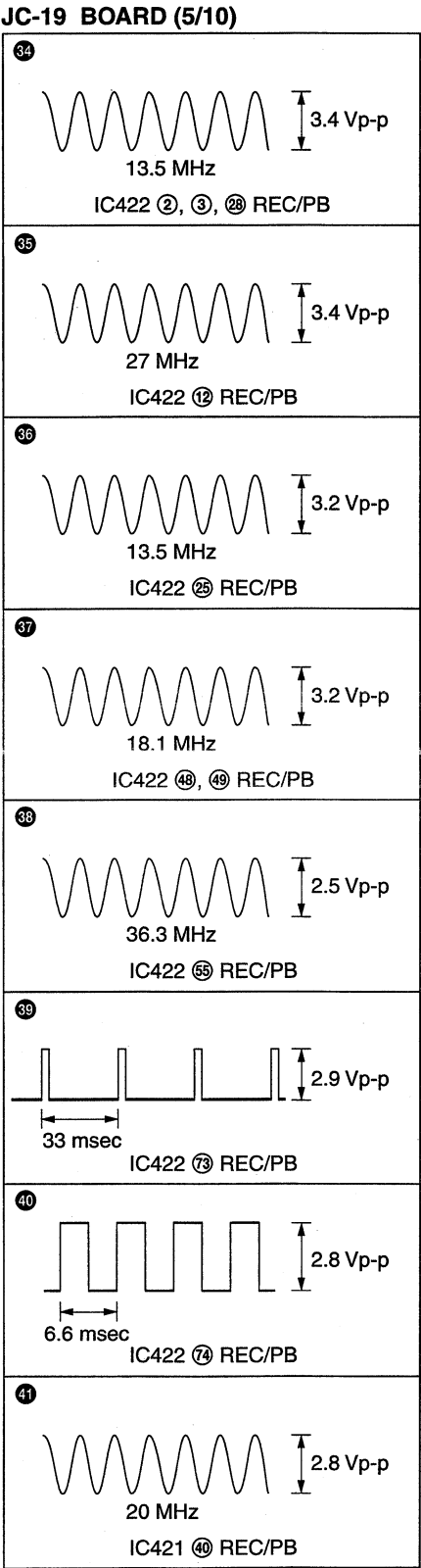
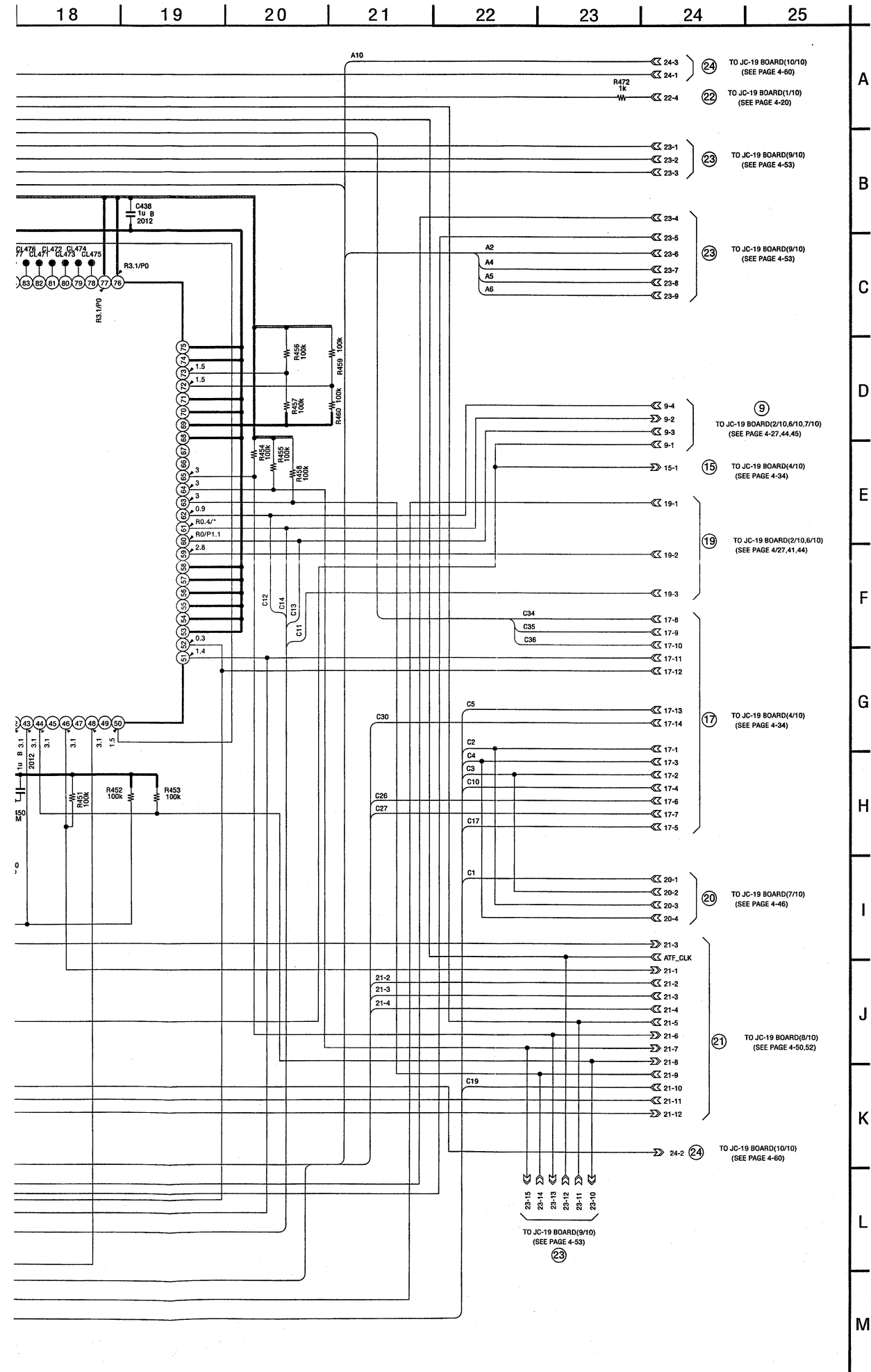
SIGNAL PATH		
	VIDEO SIGNAL	AUDIO SIGNAL
	Y/CHROMA	
REC	→	→
PB	→	→

TO RP-228 BOARD  
CN102  
(SEE PAGE 4-9)

TO RP-228 BOARD  
CN101  
(SEE PAGE 4-12)

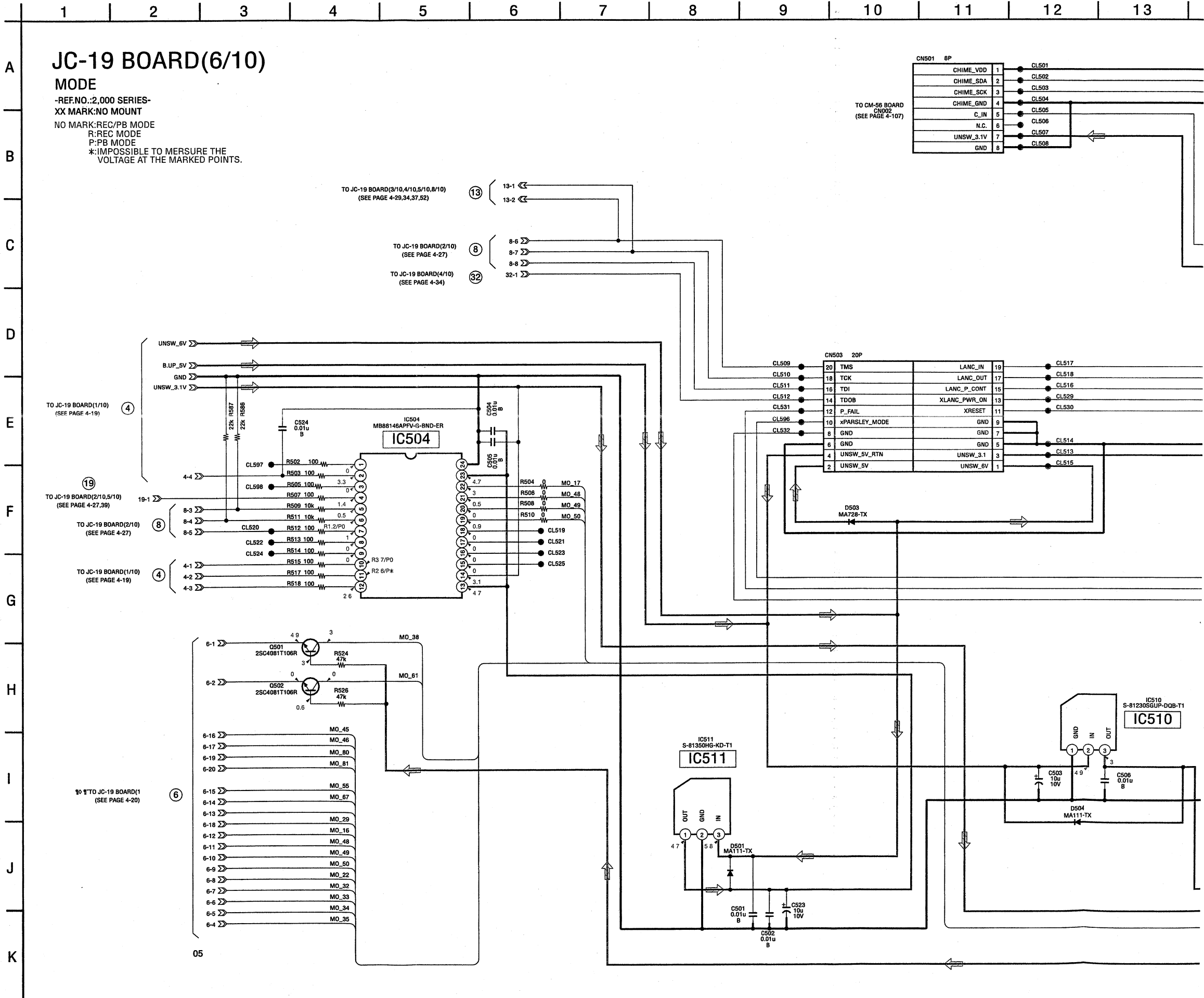
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	--

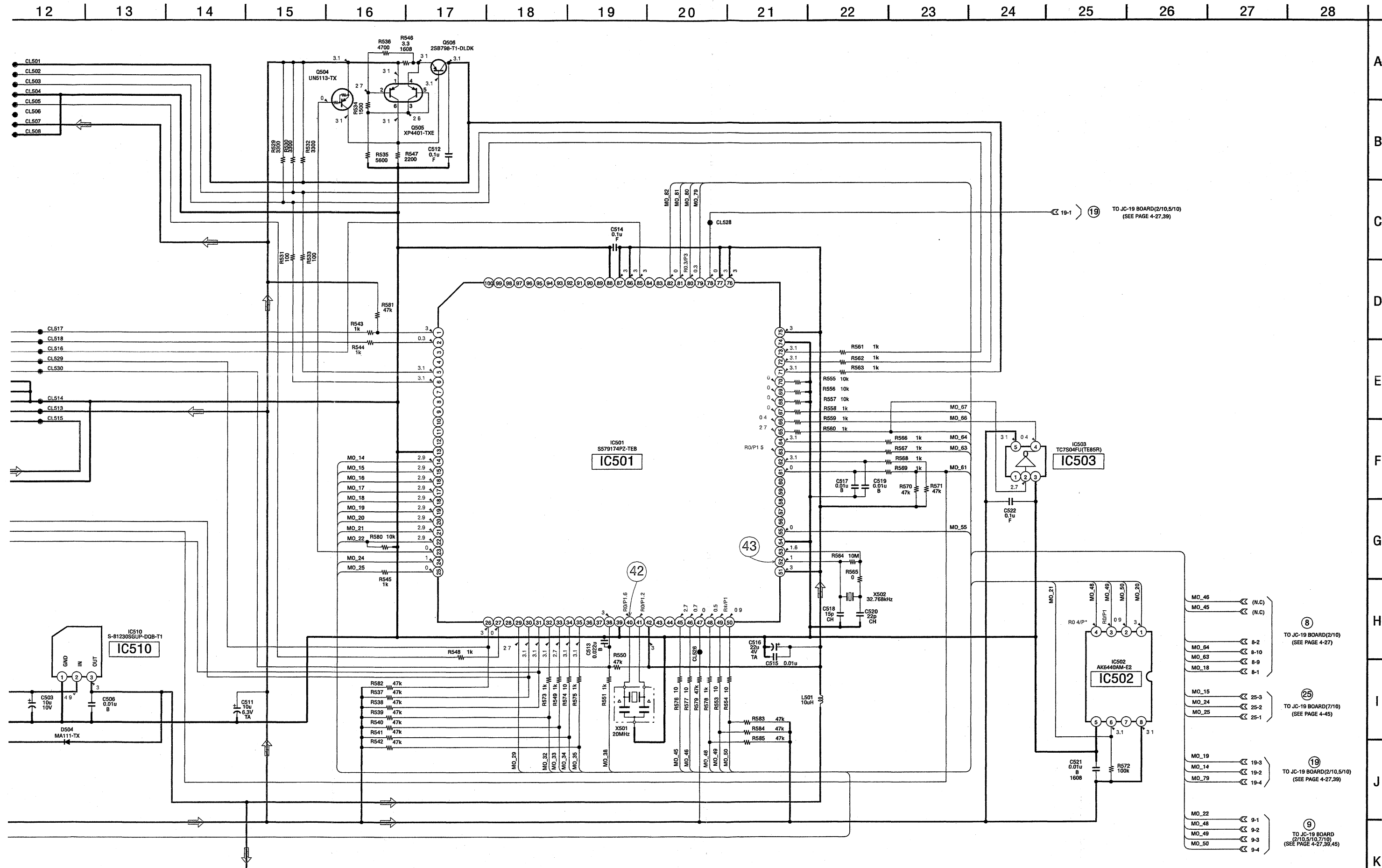


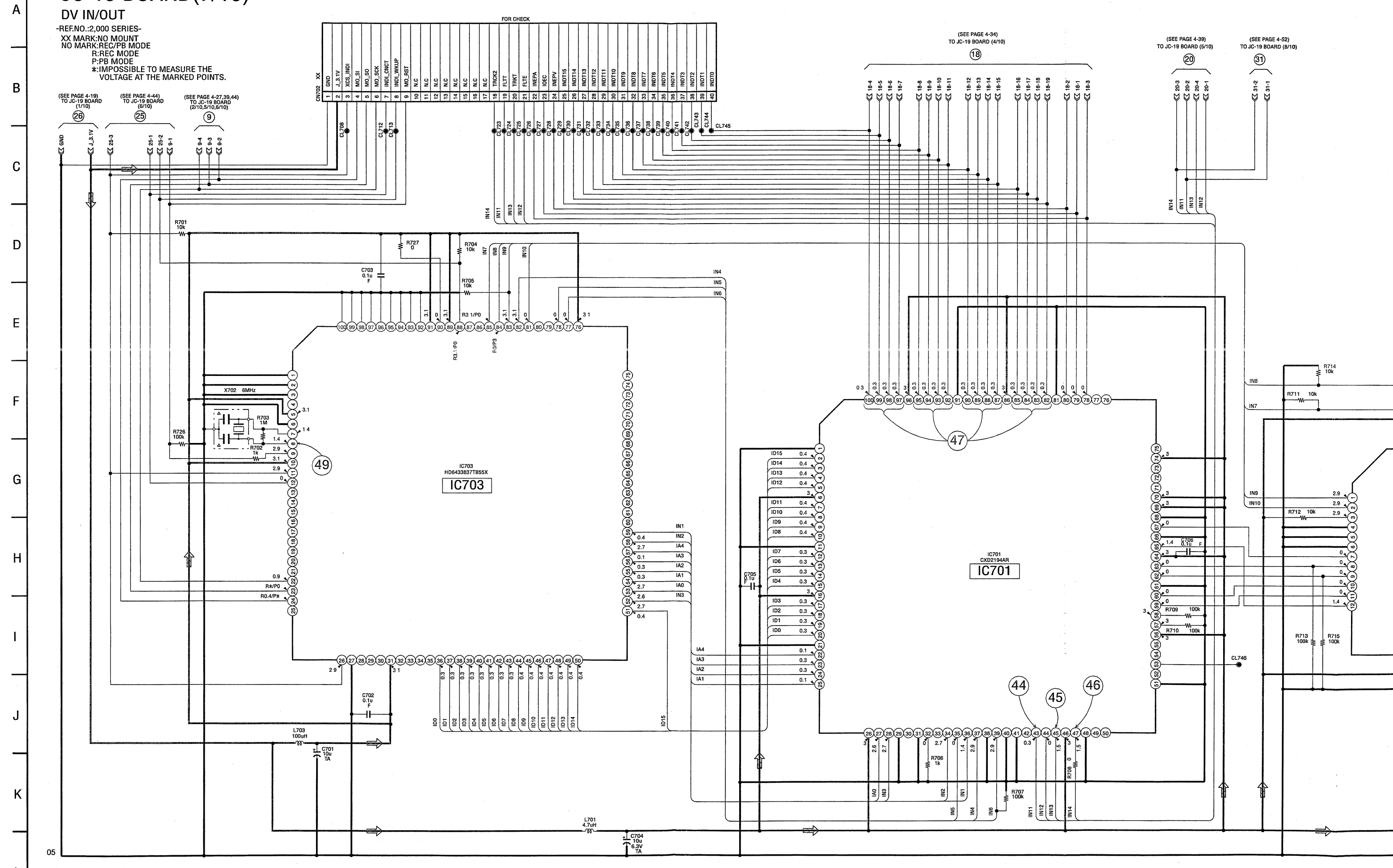


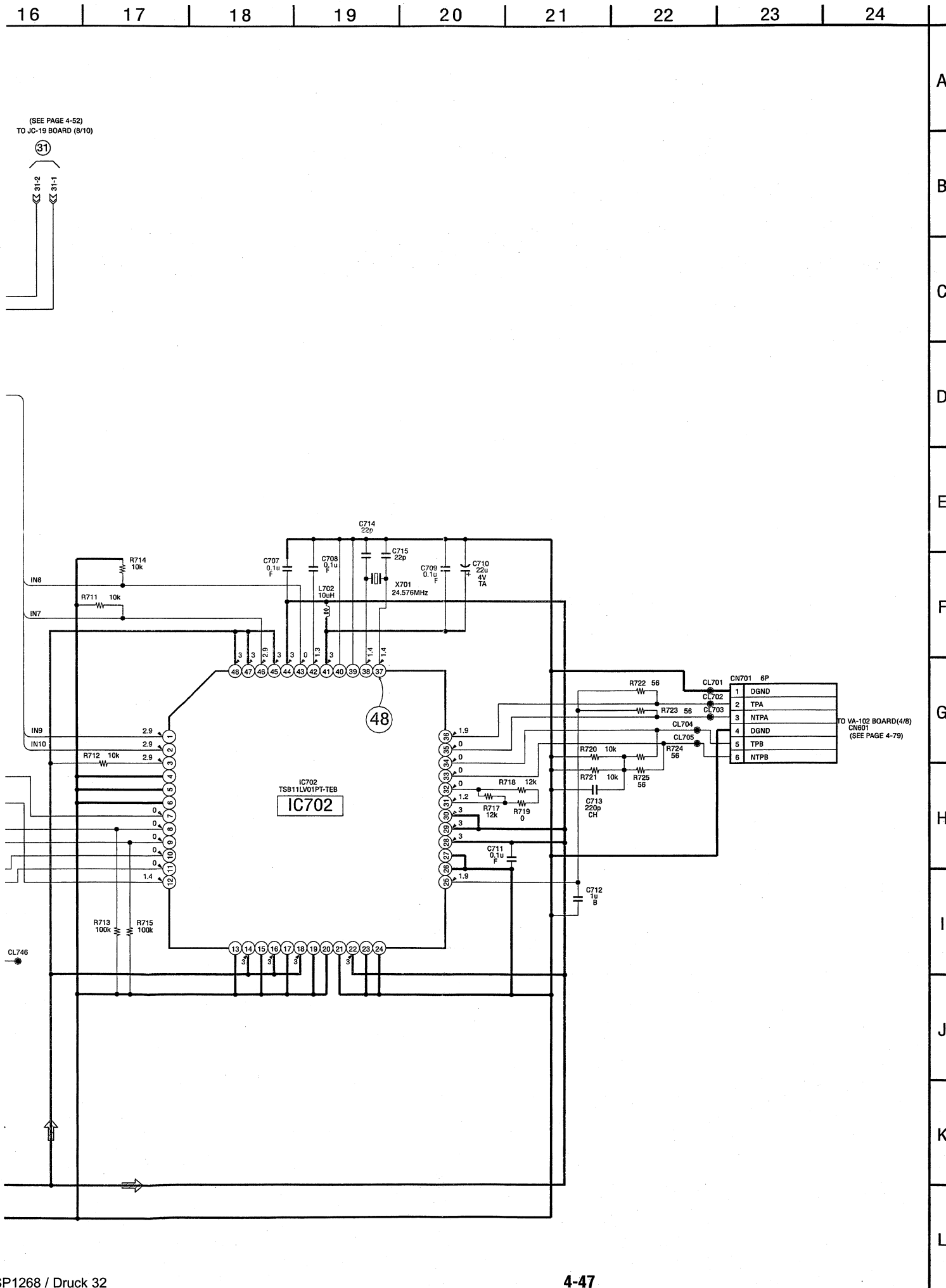


JC-19 (MODE) SCHEMATIC DIAGRAM • See page 4-14 for JC-19 printed wiring board.

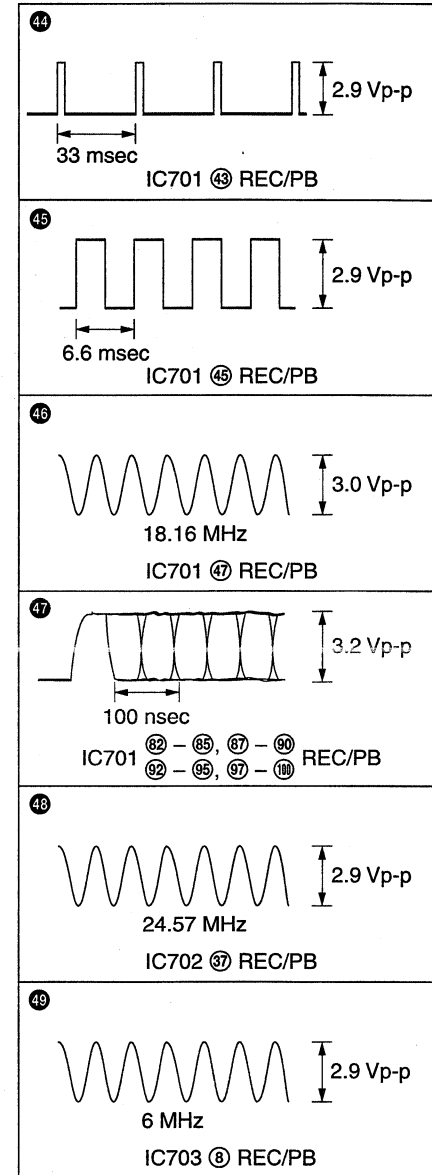


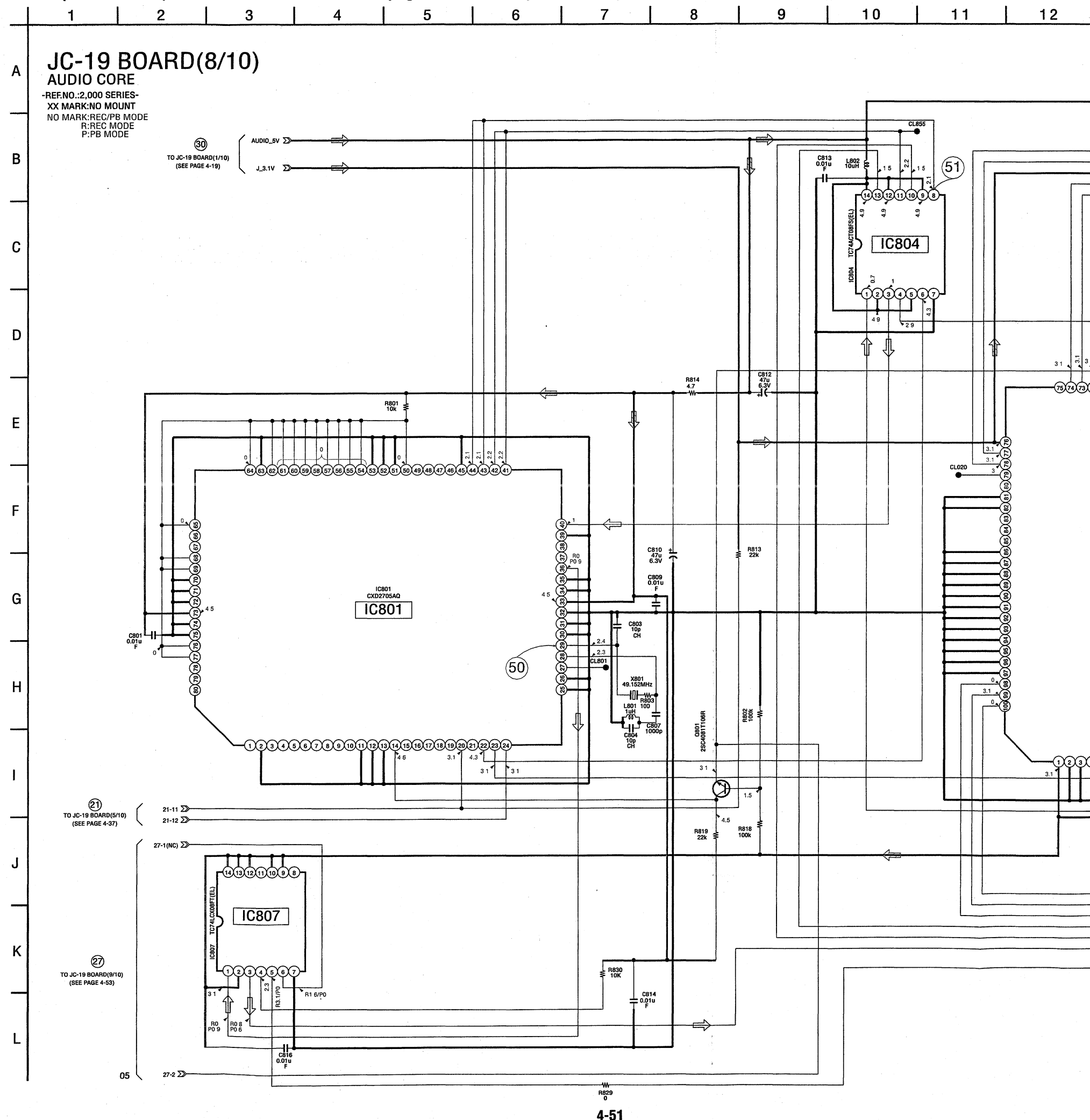
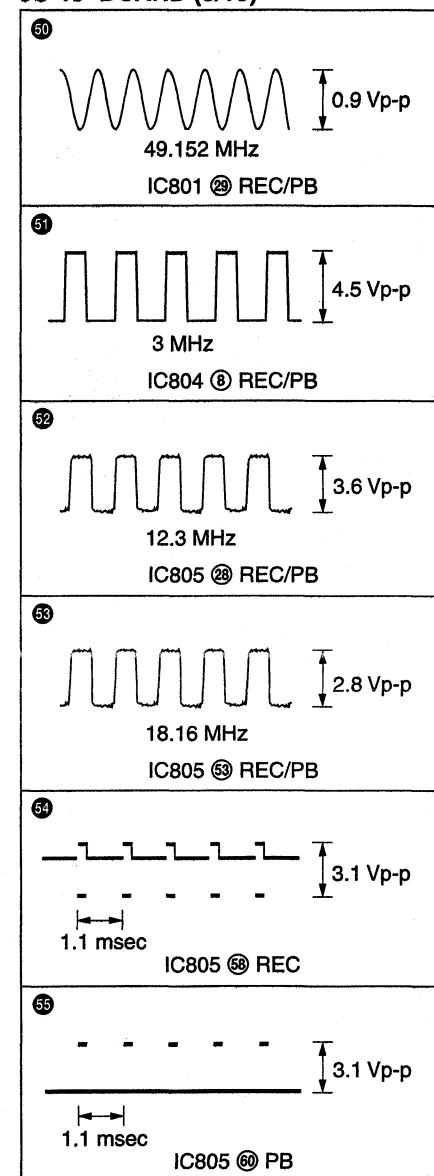




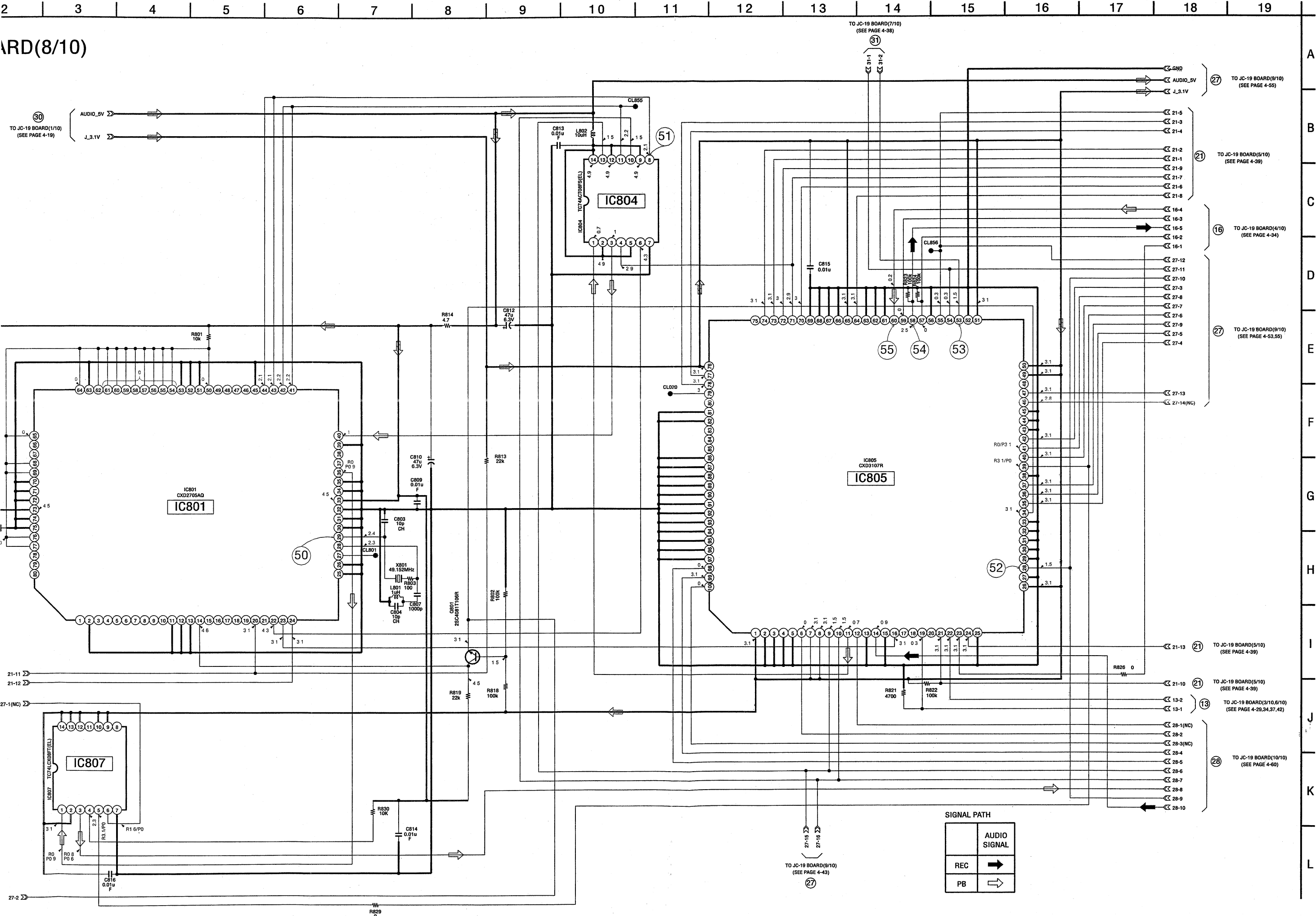


JC-19 BOARD (7/10)



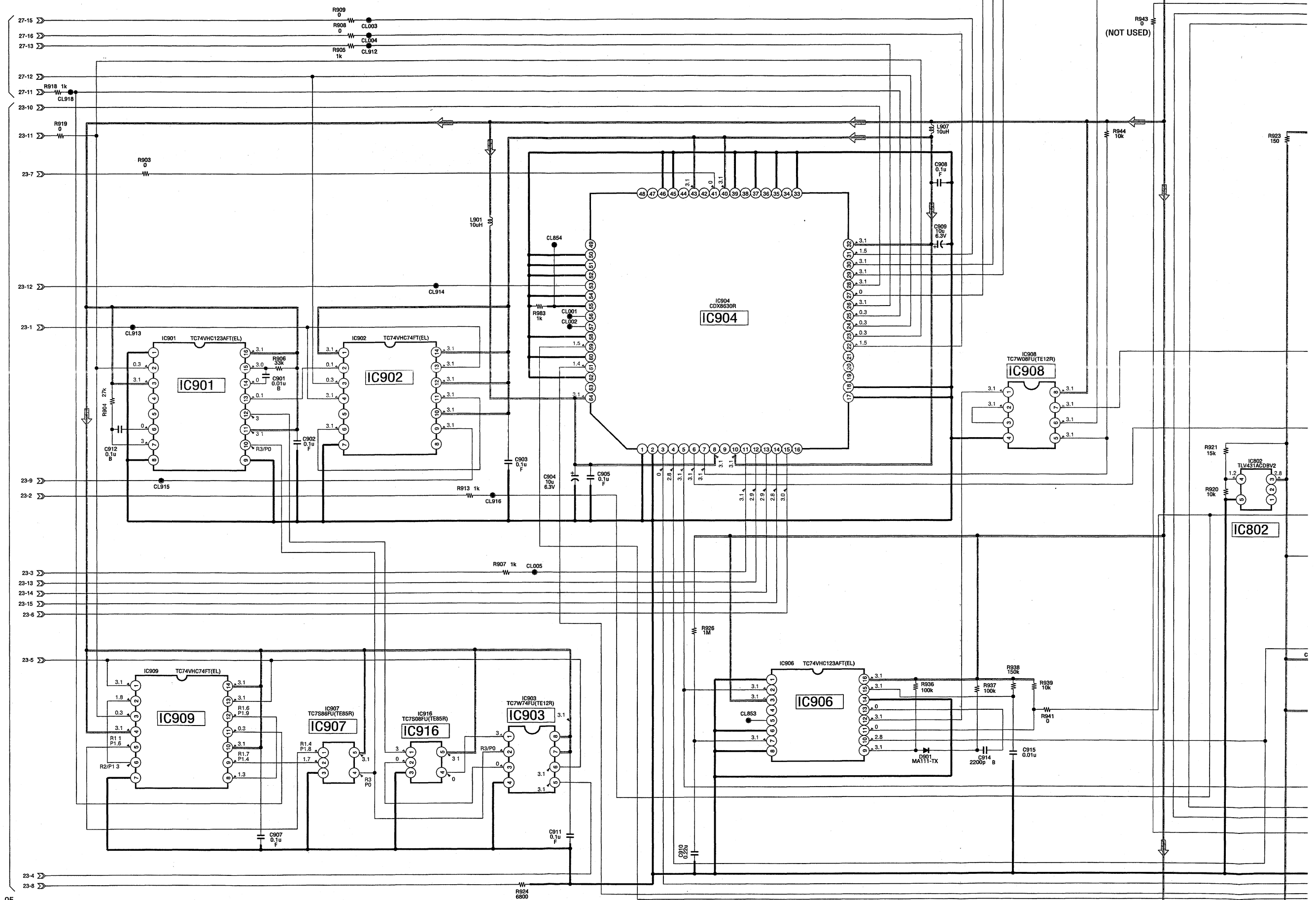


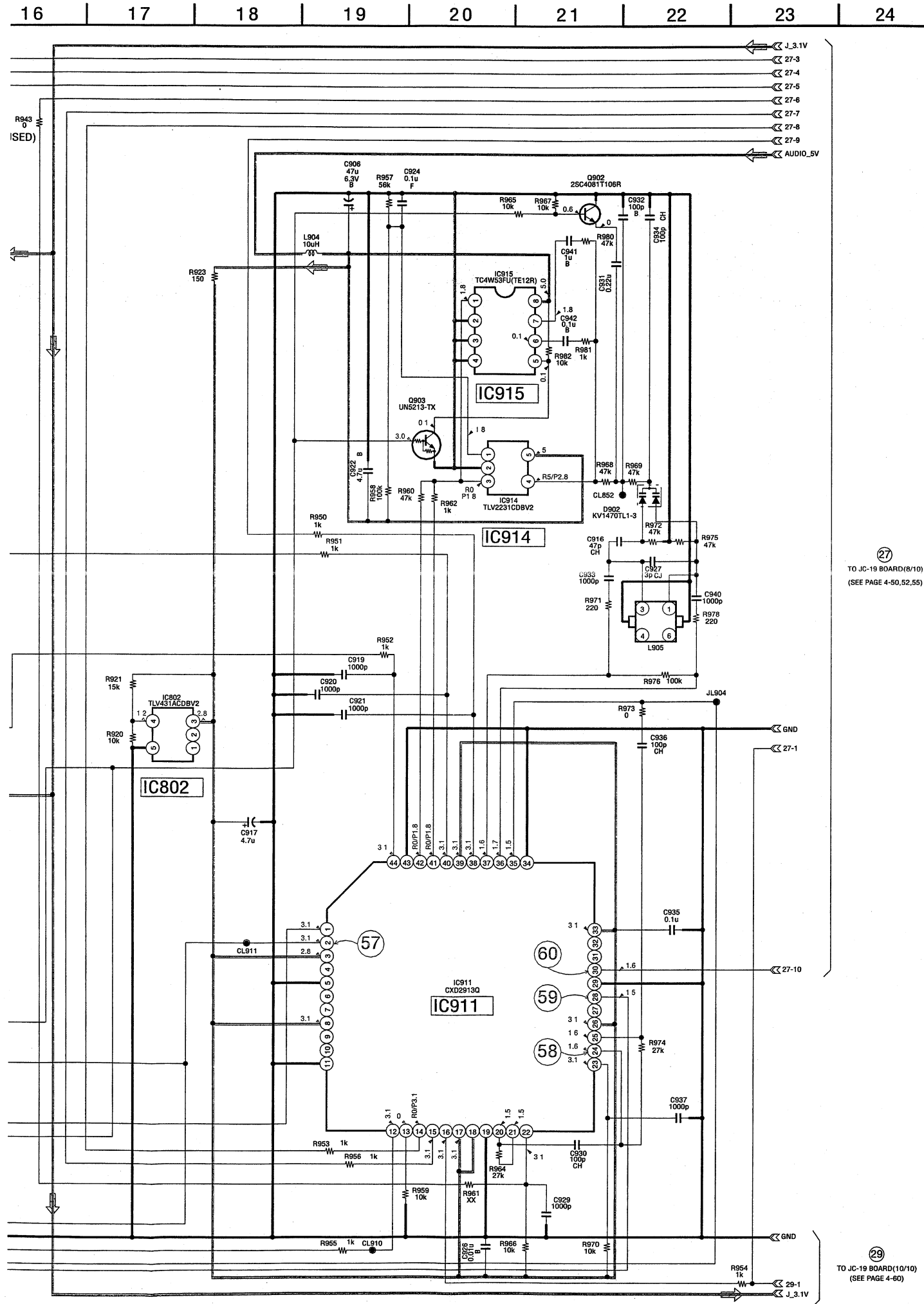
ARD(8/10)



**A** **DIGITAL AUDIO**  
-REF.NO.:2,000 SERIES-  
XX MARK:NO MOUNT  
NO MARK:REC/PB MODE  
R:REC MODE  
P:PB MODE (27)

TO JC-19 BOARD(8/10)  
(SEE PAGE 4-50)

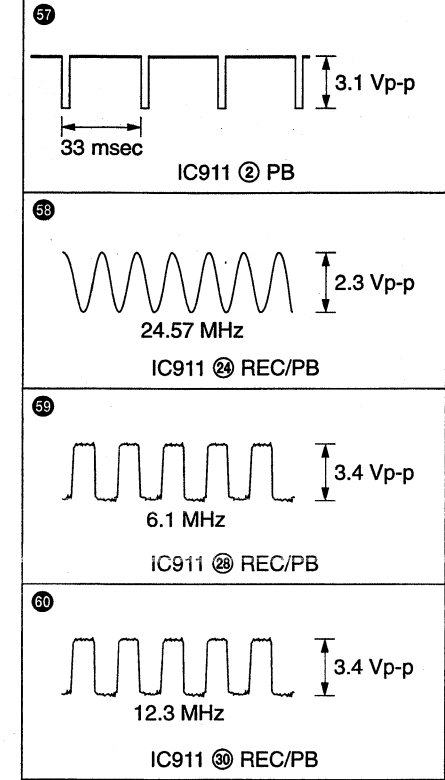




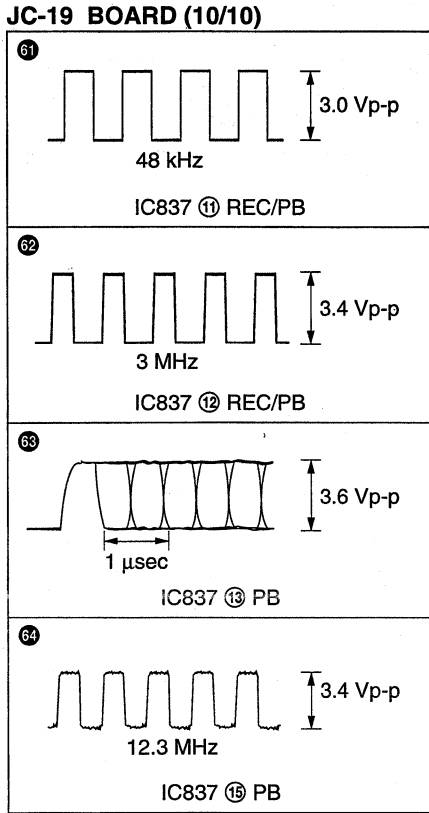
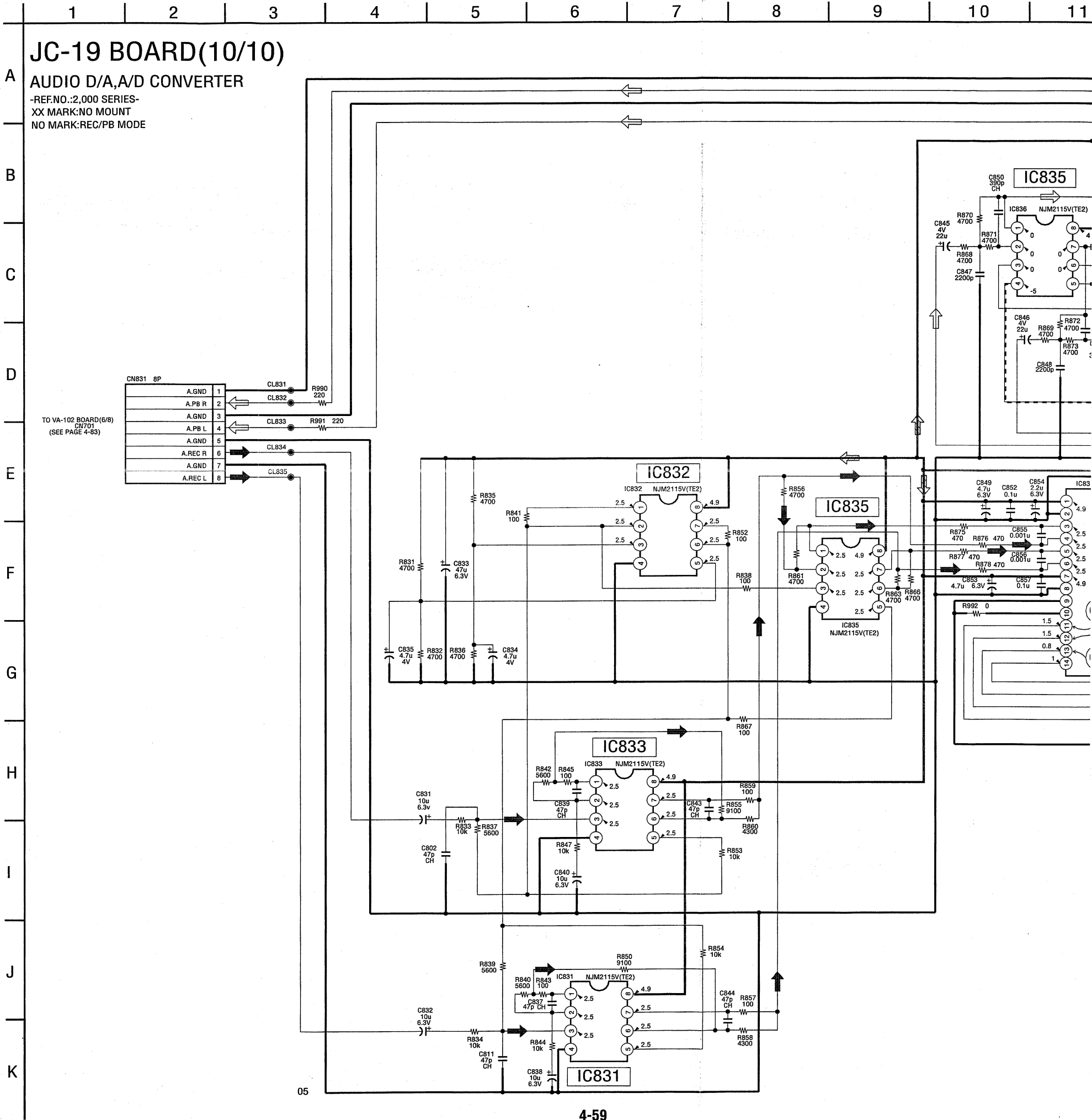
27  
TO JC-19 BOARD(8/10)  
(SEE PAGE 4-50,52,55)

29  
TO JC-19 BOARD(10/10)  
(SEE PAGE 4-60)

JC-19 BOARD (9/10)



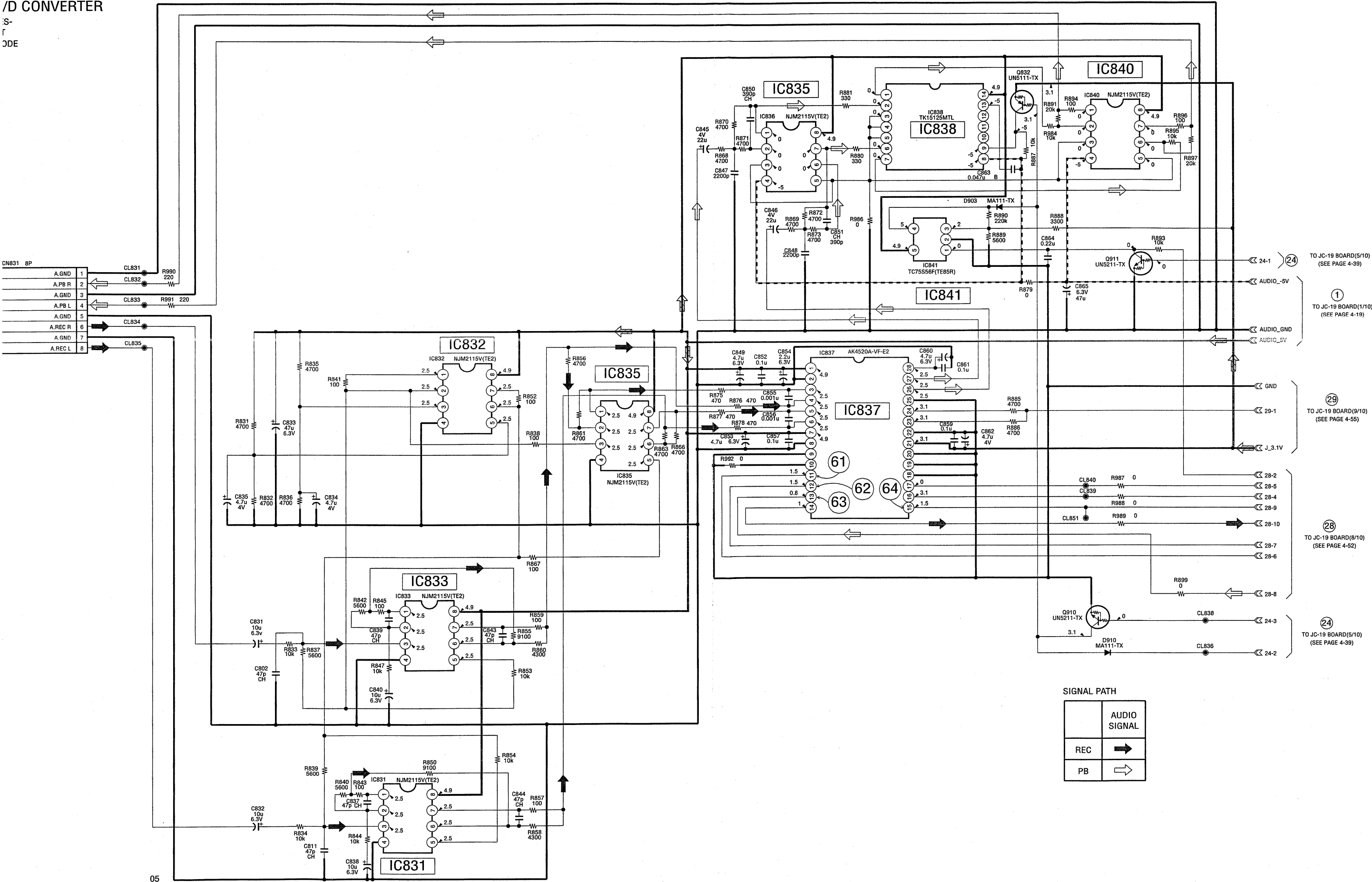




BOARD(10/10)

A/D CONVERTER

IS-  
r  
ODE

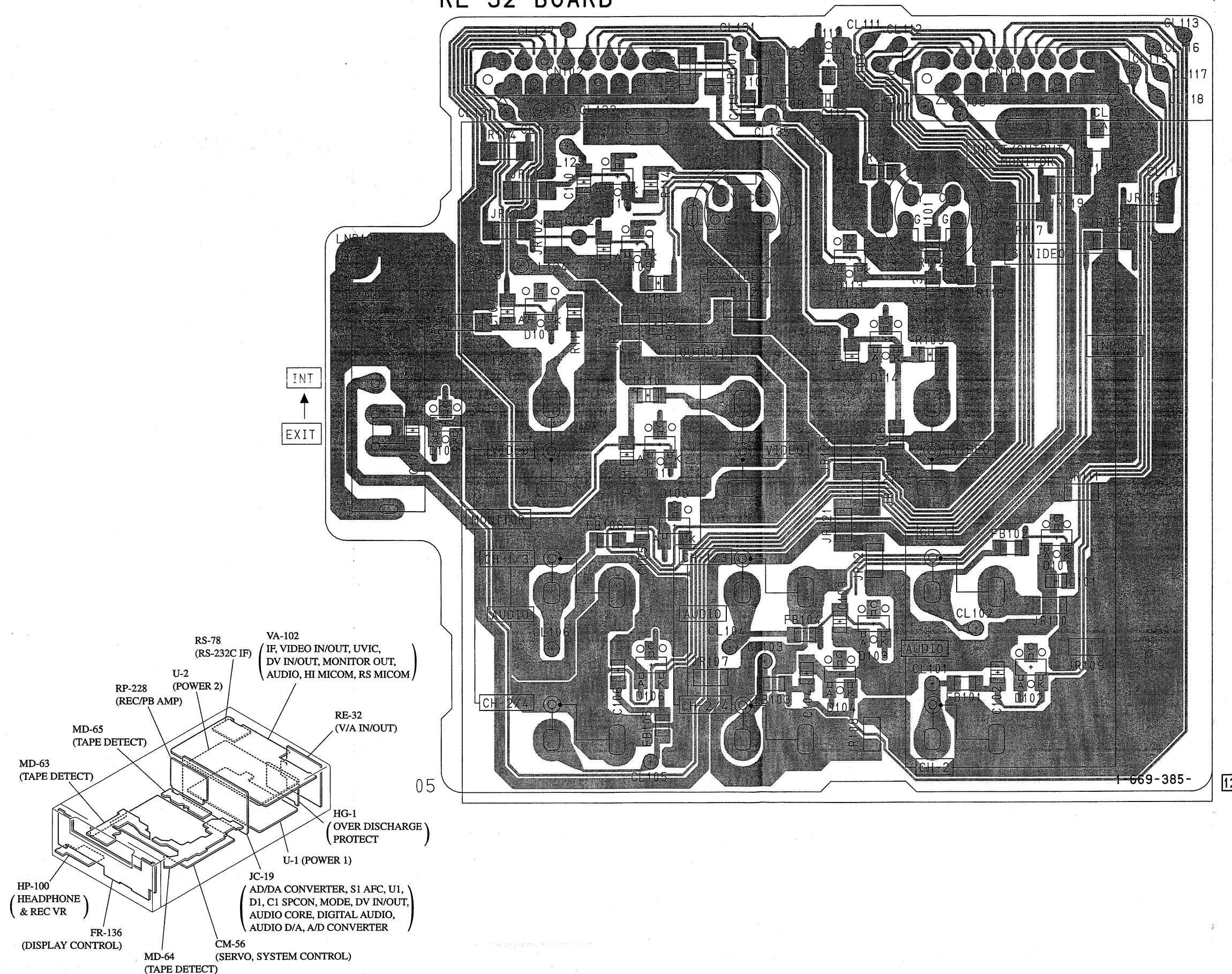


– Ref. No.: RE-32 board; 7,000 series –

- **For Printed Wiring Board.**
- There are few cases that the part isn't mounted in this model is printed on this diagram.

### RE-32 (V/A IN/OUT) SCHEMATIC DIAGRAM

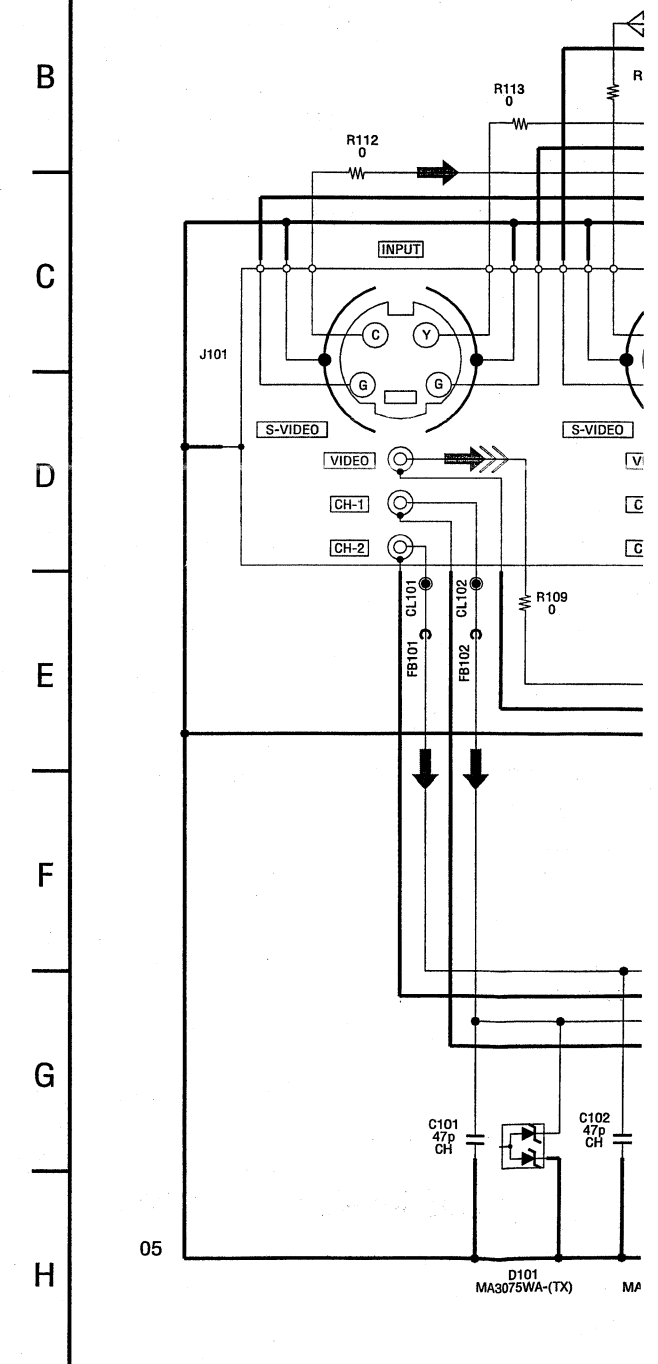
## RE-32 BOARD



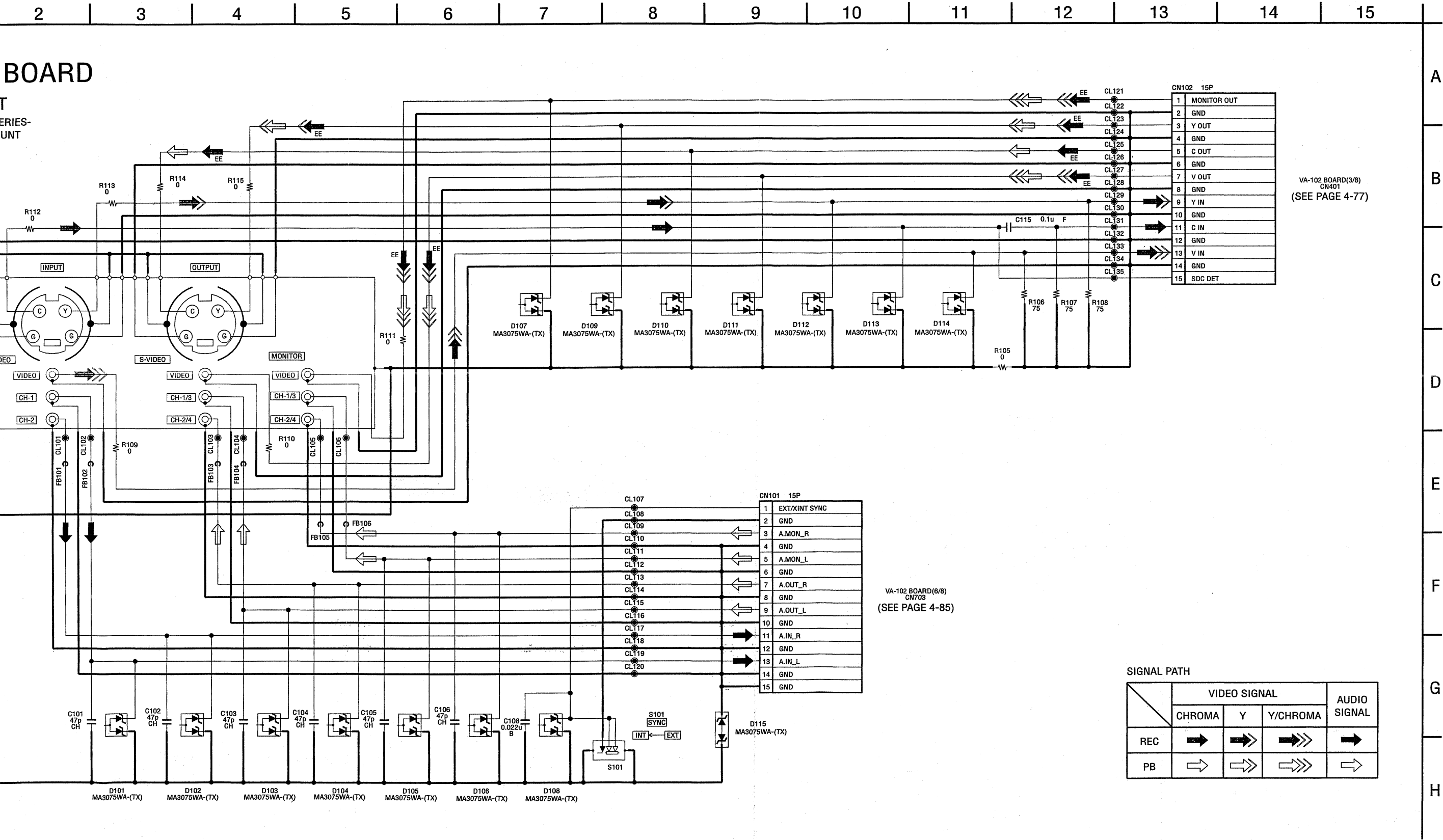
## RE-32 BOARD

V/A IN/OUT

-REF.NO.:7,000 SERIES-  
XX MARK:NO MOUNT



SCHEMATIC DIAGRAM

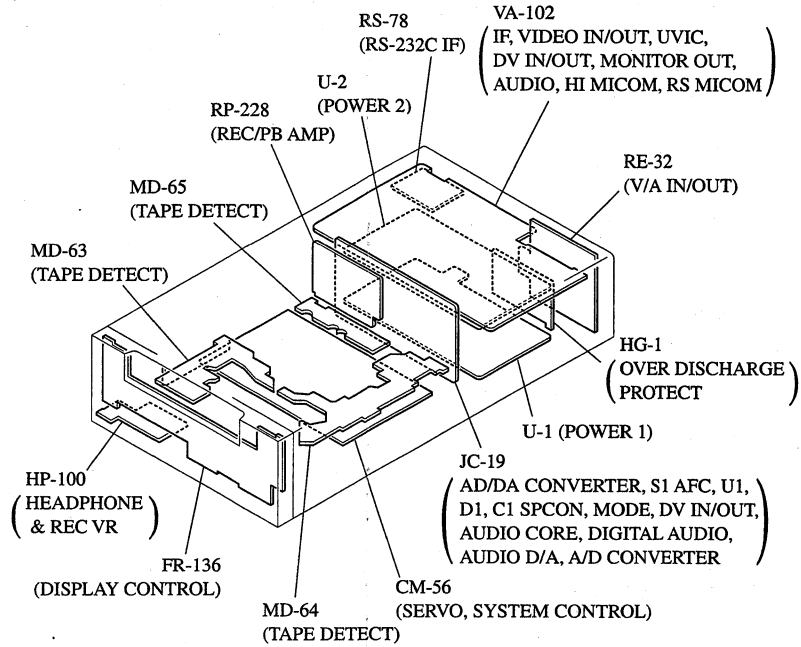
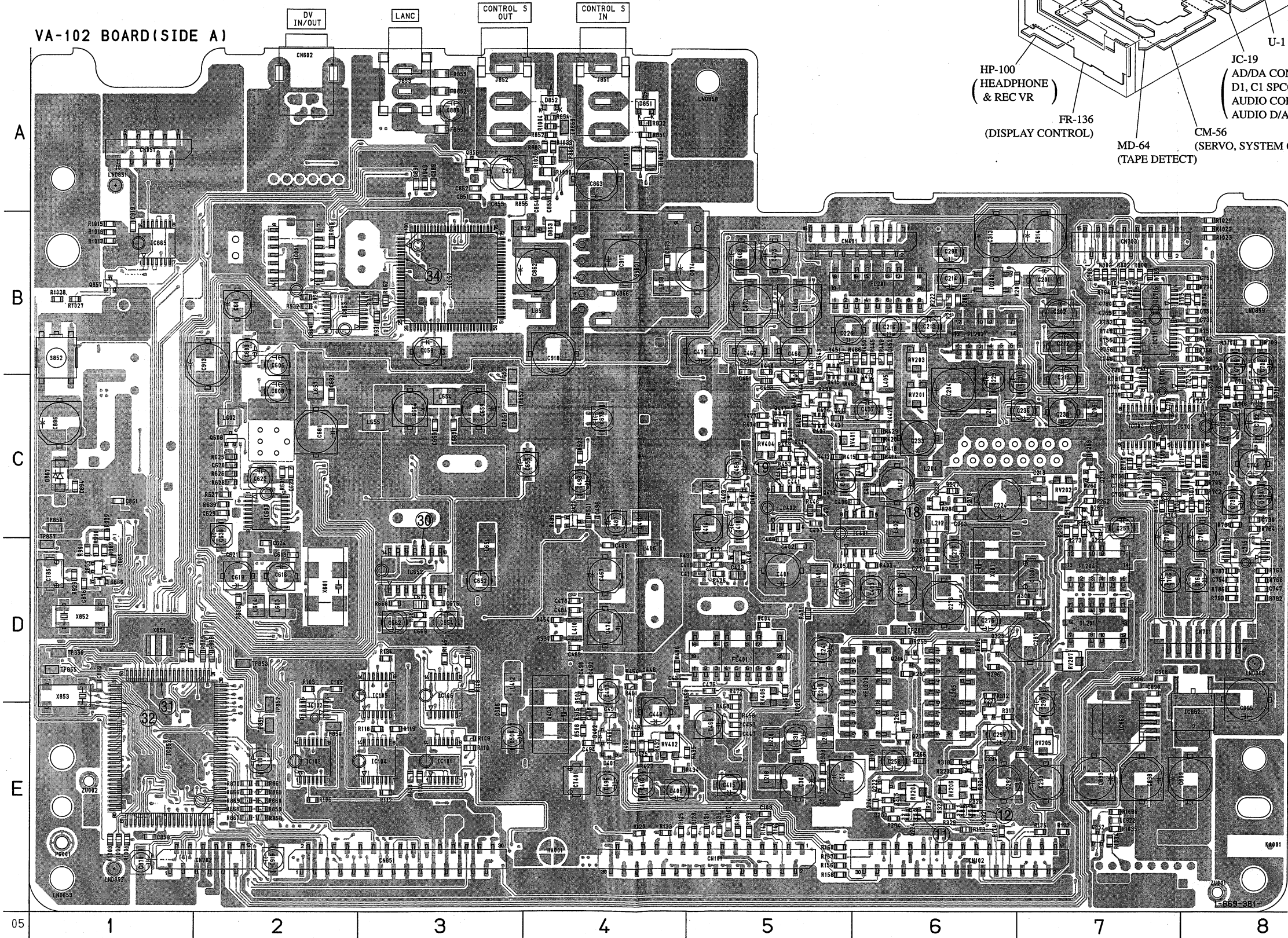




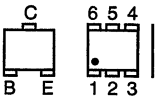
VA-102 (IF, VIDEO IN/OUT, UVIC, DV IN/OUT, MONITOR OUT, AUDIO, HI MICOM, RS MICOM) PRINTED WIRING BOARD  
- Ref. No.: VA-102 board; 1,000 series -

VA-102 BOARD (SIDE A)

CN051	A-1
CN101	E-5
CN102	E-6
CN401	B-5
CN602	A-2
CN701	D-8
CN702	E-2
CN703	B-7
CN851	E-3
D401	E-4
D403	C-5
D404	C-5
D851	A-4
D852	A-4
D853	B-4
D866	D-1
D867	C-1
IC051	B-2
IC052	B-3
IC101	E-3
IC102	E-2
IC103	E-2
IC104	E-3
IC105	D-3
IC106	D-3
IC202	B-6
IC401	C-6
IC402	C-5
IC652	D-3
IC701	C-7
IC702	C-8
IC703	C-7
IC706	C-7
IC711	B-7
IC715	D-8
IC716	B-7
IC852	E-1
IC853	B-2
IC856	B-4
IC862	E-8
IC863	E-7
IC865	B-1
Q214	D-6
Q215	C-7
Q217	C-7
Q218	E-6
Q221	C-7
Q222	E-6
Q223	C-6
Q224	E-6
Q225	D-6
Q229	E-6
Q231	E-6
Q232	E-6
Q404	C-6
Q407	C-5
Q408	D-5
Q409	C-5
Q410	C-5
Q411	B-5
Q412	C-6
Q413	C-5
Q414	C-5
Q415	B-5
Q417	C-5
Q420	C-4
Q852	E-7
Q855	D-1
Q856	A-3
Q857	B-1



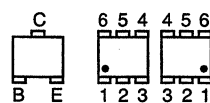
- For Printed Wirri
- VA-102 board is of layers 2 to 5 h
- There are few ca is printed on this
- Chip transistor



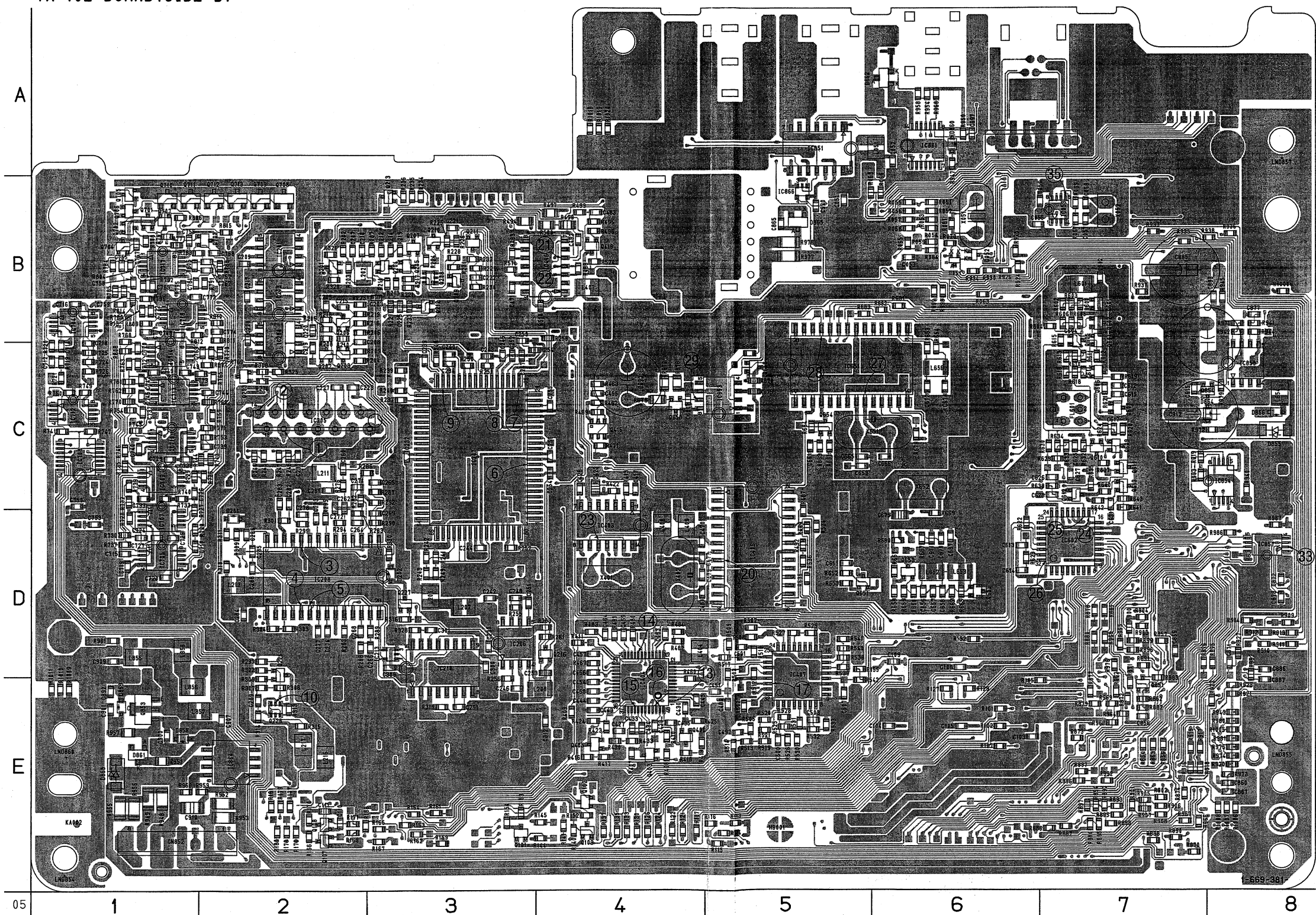


U1,  
OUT,  
3,

- Chip transistor



VA-102 BOARD(SIDE B)



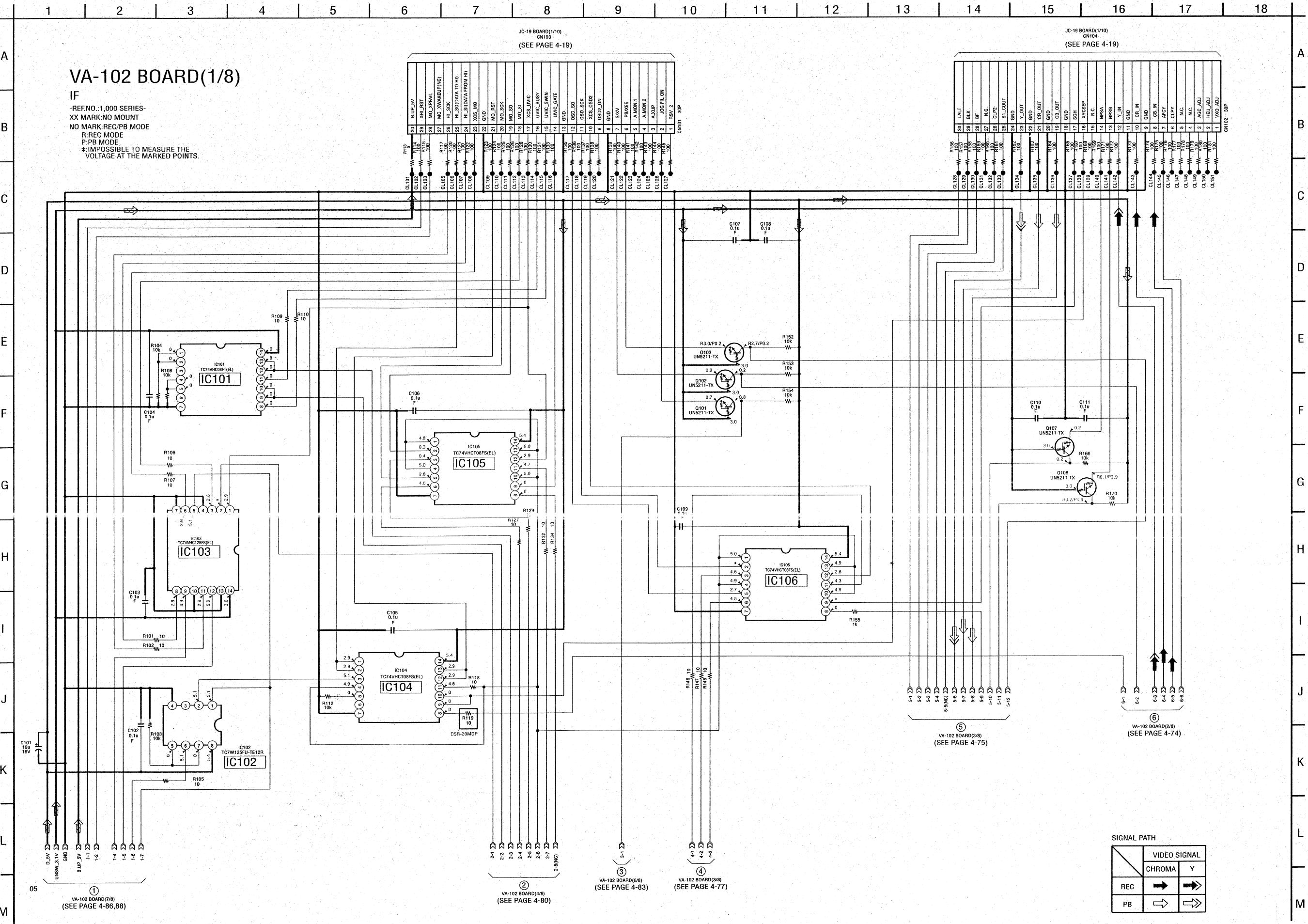
VA-102 BOARD (SIDE B)

CN601	A-6	Q103	E-4
CN852	E-1	Q107	E-2
		Q108	E-2
D051	B-6	Q201	B-2
D052	B-6	Q202	C-2
D201	D-2	Q203	C-2
D202	D-3	Q204	B-3
D855	C-8	Q205	B-3
D856	C-8	Q206	B-2
D858	E-1	Q207	B-3
D859	E-1	Q208	B-3
D861	E-1	Q209	B-3
D862	A-6	Q210	B-3
D863	E-1	Q211	B-3
D864	C-8	Q212	B-3
		Q213	B-3
IC053	B-7	Q216	D-4
IC201	B-2	Q226	D-2
IC203	B-2	Q227	D-3
IC204	B-2	Q228	E-2
IC205	C-2	Q233	C-2
IC206	D-3	Q403	E-4
IC207	C-3	Q405	E-4
IC208	D-2	Q406	E-4
IC210	D-3	Q416	C-4
IC213	D-3	Q419	B-4
IC403	D-4	Q601	B-7
IC404	E-4	Q602	B-7
IC405	D-5	Q604	B-7
IC406	B-4	Q605	B-7
IC407	D-5	Q606	C-7
IC602	D-7	Q607	C-7
IC651	C-5	Q613	C-7
IC853	C-5	Q851	D-5
IC704	B-1	Q853	D-6
IC705	D-1	Q855	D-6
IC707	D-1	Q656	C-5
IC708	C-1	Q658	C-4
IC709	C-1	Q701	B-1
IC710	C-1	Q702	B-1
IC712	C-1	Q703	B-2
IC713	C-1	Q704	B-1
IC714	C-1	Q705	B-1
IC717	B-1	Q706	B-1
IC718	B-1	Q707	B-1
IC851	A-5	Q708	B-2
IC854	C-8	Q709	B-2
IC857	D-8	Q710	B-1
IC858	C-8	Q711	B-1
IC861	A-6	Q712	B-2
IC864	E-2	Q713	B-2
IC866	B-5	Q851	E-7
		Q853	E-1
		Q854	C-8
Q101	E-3		
Q102	E-4		

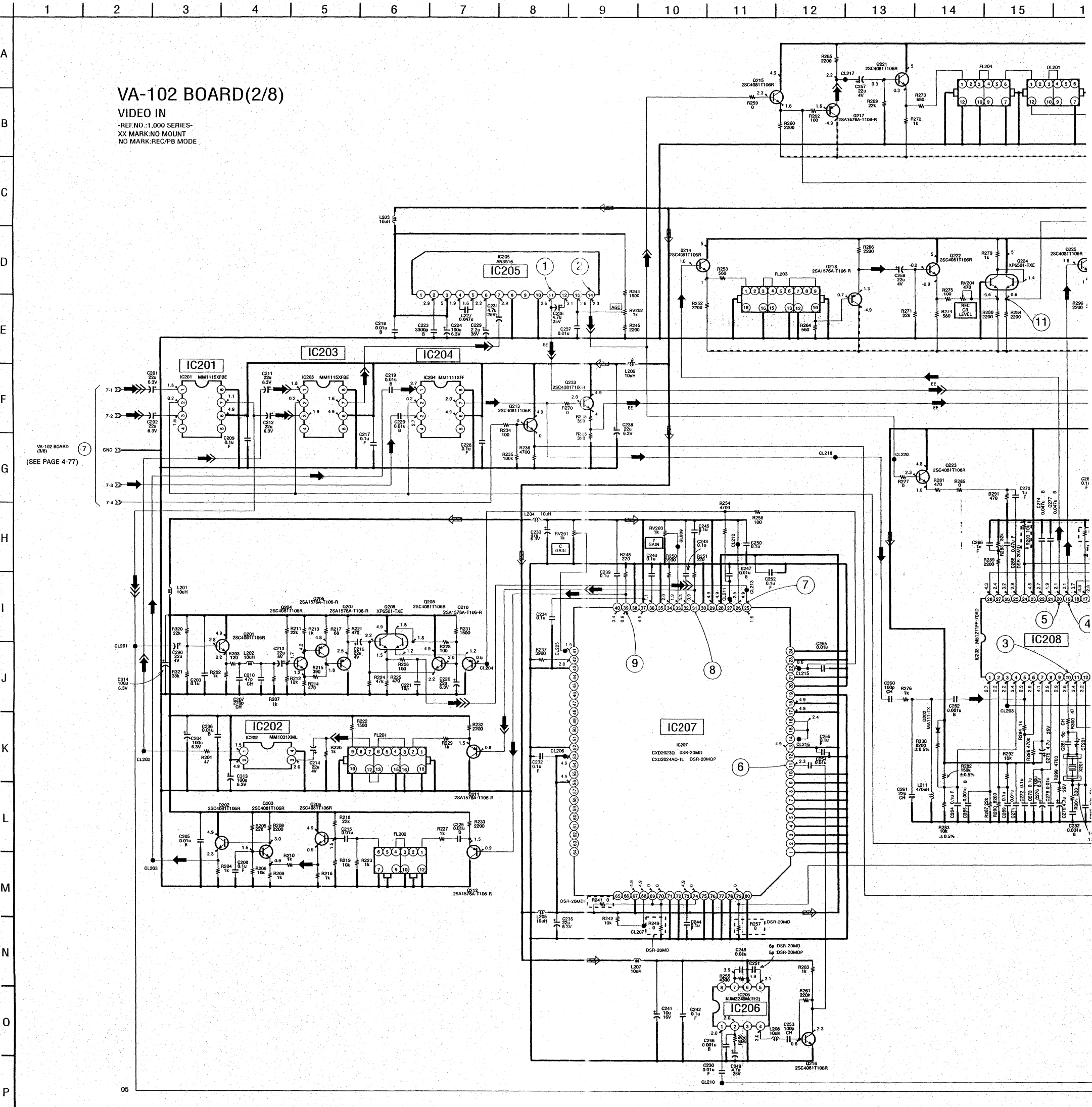




VA-102 (IF) SCHEMATIC DIAGRAM



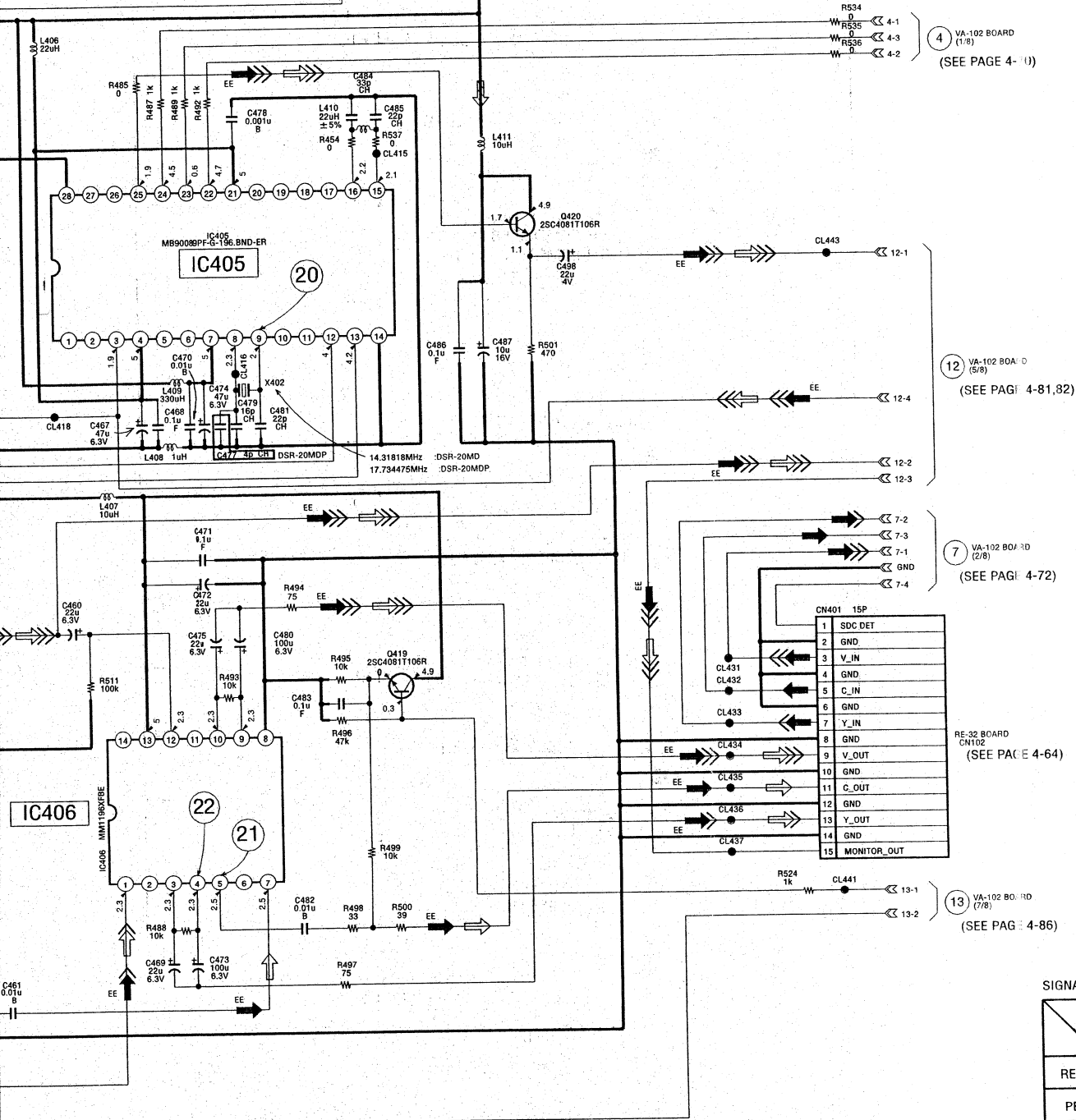
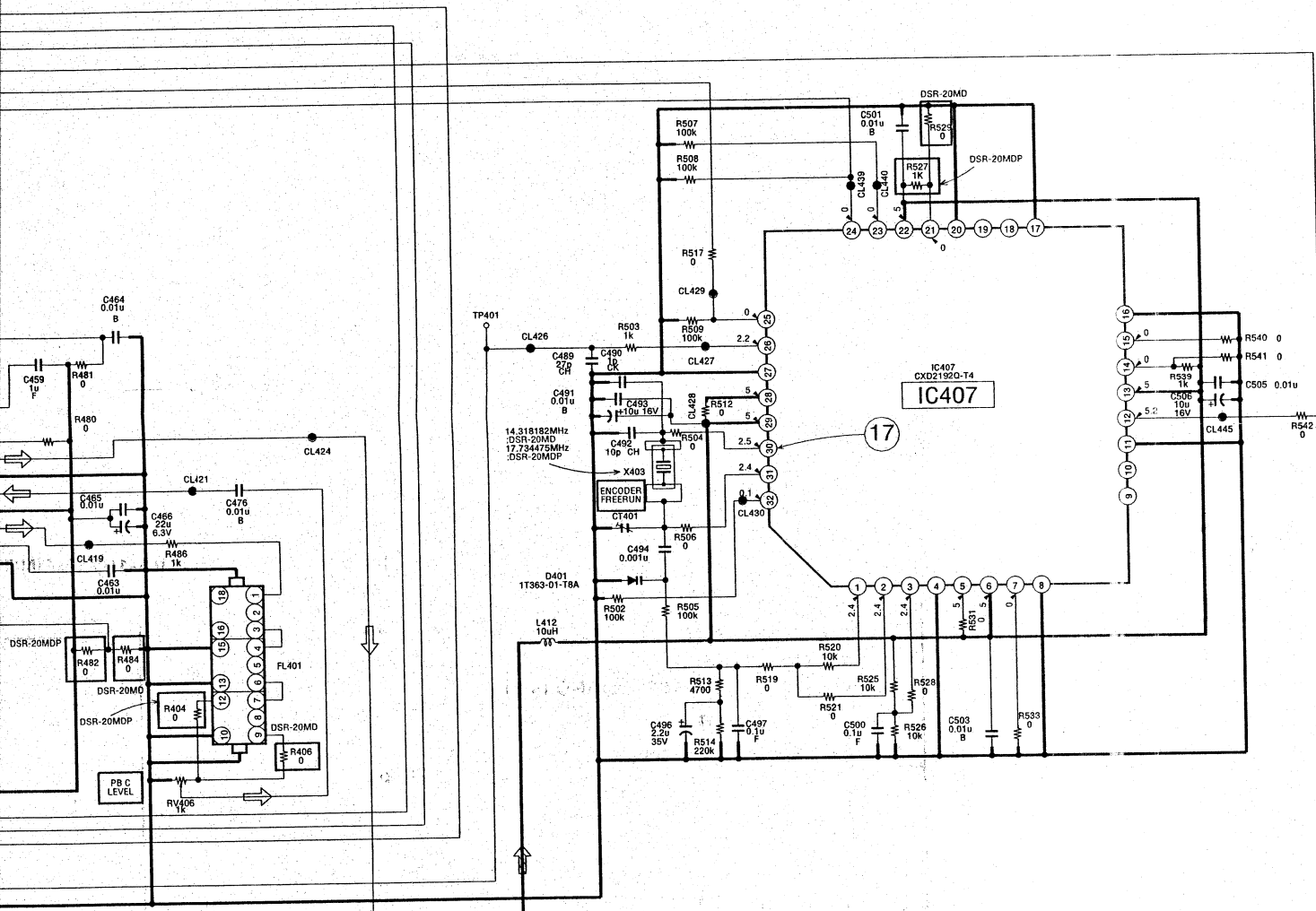




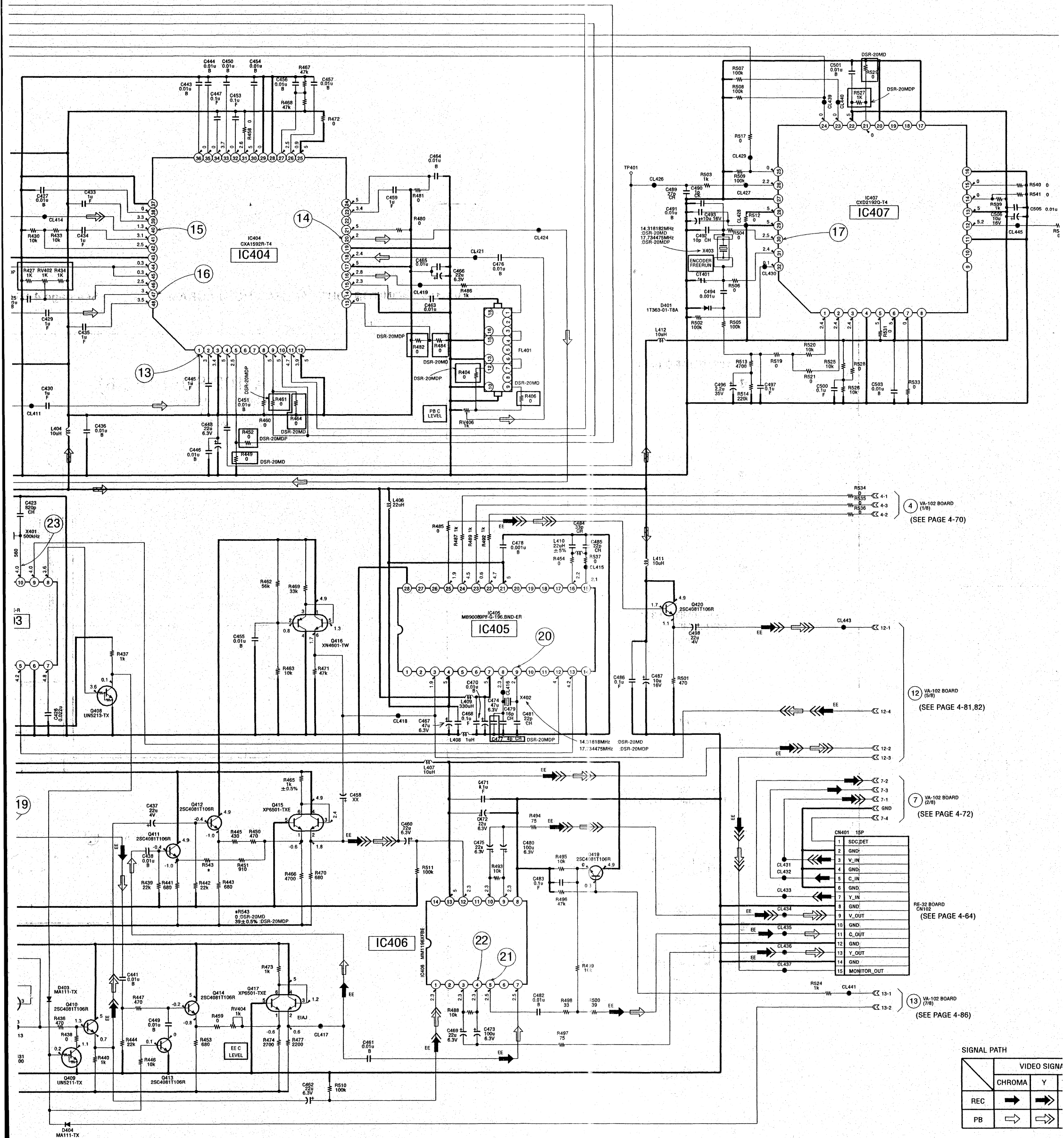


• See page 4-65 for VA-102 printed wiring board.







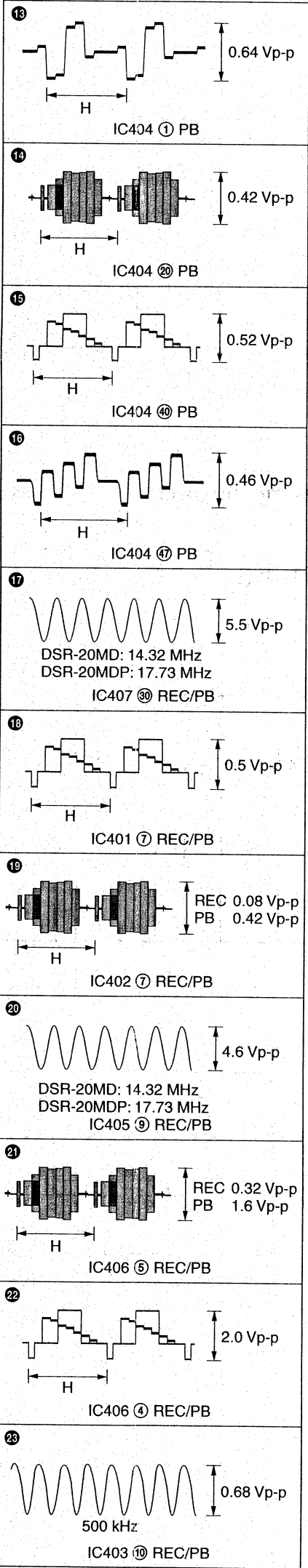


24

0 0  
1 0  
5 0.01u  
R542  
0

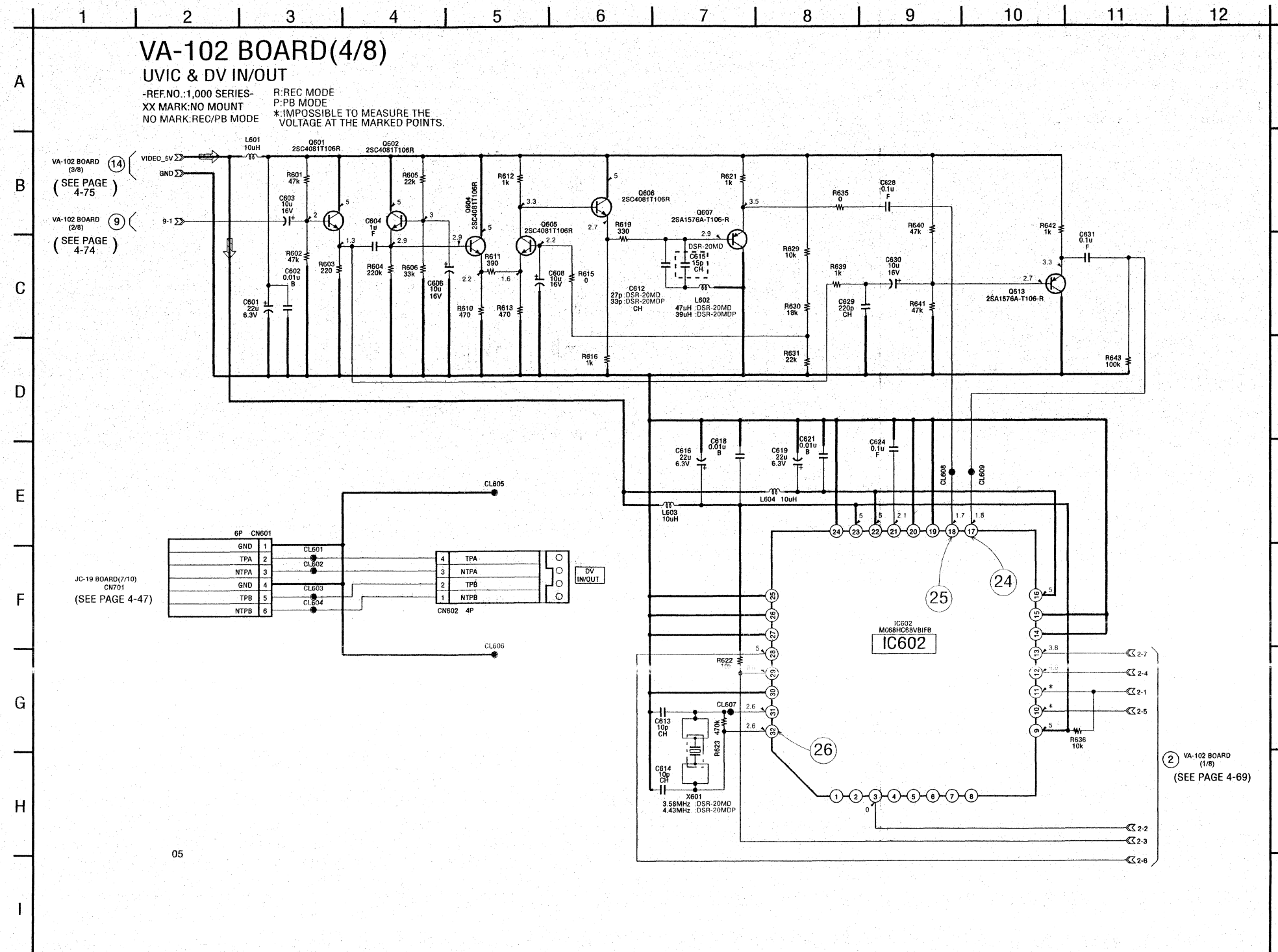
SIGNAL	
Y	Y/CHROMA
▶▶	▶▶▶▶
▶▶	◀▶▶▶

VA-102 BOARD (3/8)

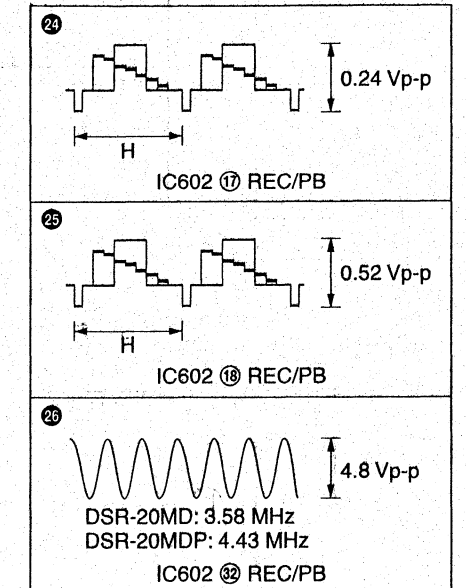


## VA-102 (UVIC &amp; DV IN/OUT) SCHEMATIC DIAGRAM

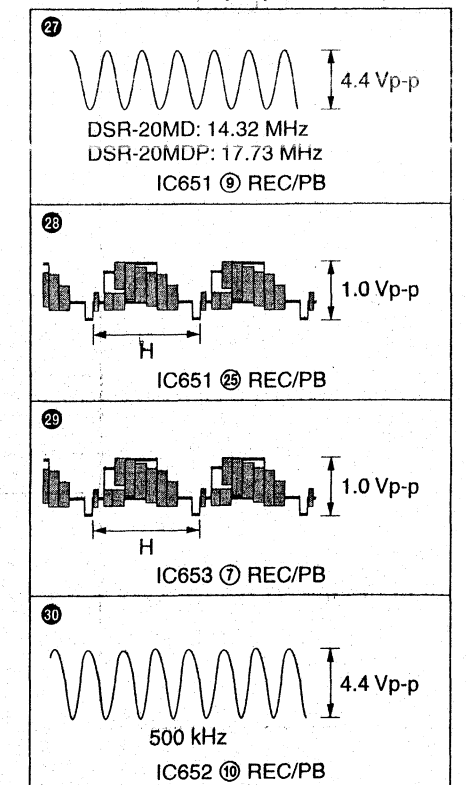
• See page 4-65 for VA-102 printed wiring board.



## VA-102 BOARD (4/8)



## VA-102 BOARD (5/8)



6 7 8 9 10 11 12

Q606  
25C4081T106R

R619  
330  
W

R621  
1k

Q607  
2SA1576A-T106-R

DSR-20MD  
C615  
15p  
CH

C612  
27p DSR-20MD  
33p DSR-20MD  
CH

L602  
47uH DSR-20MD  
39uH DSR-20MD

R629  
10k

R630  
18k

R631  
22k

R635  
0

C628  
0.1u  
F

R640  
47k

R639  
1k

C629  
220p  
CH

C630  
10u  
16V

R641  
47k

Q613  
2SA1576A-T106-R

R642  
1k

C631  
0.1u  
F

R643  
100k

C616  
22u  
6.3V

C618  
0.01u  
B

C619  
22u  
6.3V

C621  
0.01u  
B

C624  
0.1u  
F

L604  
10uH

L603  
10uH

IC602  
MC68HC85VBIFB  
IC602

CL607  
470k

R622  
10k

C613  
10p  
CH

C614  
10p  
CH

X601  
3.58MHz DSR-20MD  
4.43MHz DSR-20MD

24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0

25 24

26

2-7  
2-4  
2-1  
2-5  
2-2  
2-3  
2-6

VA-102 BOARD  
(1/8)  
(SEE PAGE 4-69)

24

0.24 V<sub>p-p</sub>

H

IC602 (17) REC/PB

---

25

0.52 V<sub>p-p</sub>

H

IC602 (18) REC/PB

---

26

4.8 V<sub>p-p</sub>

DSR-20MD: 3.58 MHz  
DSR-20MDP: 4.43 MHz

IC602 (32) REC/PB

27

DSR-20MD: 14.32 MHz  
DSR-20MDP: 17.73 MHz  
IC651 ⑨ REC/PB

28

IC651 ⑫ REC/PB

29

IC653 ⑦ REC/PB

30

500 kHz  
IC652 ⑩ REC/PB

1 2 3 4 5 6 7 8

A

B

C

D

E

F

G

H

I

VA-102 BOARD(5/8)

MONITOR OUT

-REF.NO.:1,000 SERIES-  
XX MARK:NO MOUNT  
NO MARK:REC/PB MODE

VA-102 BOARD  
(3/8)  
(SEE PAGE 4-77)

12-1

12-4

12-2

0651  
2SC4081T106R  
1.7

4.9

1.1

FE

R652  
880

C651  
0.01u  
B

C652  
10u  
16V

0653  
2SC4081T106R

0655  
2SA1576A-T106-R

0654  
XX

R657  
6800

C654  
22u  
4V

R658  
12k

R660  
1k

R659  
2200

L652  
22uH

C656  
100p  
CH

C658  
100p  
CH

C657  
120p  
CH

R662  
1k

L651  
10uH

0651  
MB3003PP-155-BUC-ER

CL653

CL652

CL654

CL655

CL656

CL657

CL658

CL659

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CL661

CL662

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CL664

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CL1013

CL1014

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CL1016

CL1017

CL1018

CL1019

CL1020

CL1021

CL1022

CL1023

CL1024

CL1025

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CL1031

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CL1037

CL1038

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CL1041

CL1042

CL1043

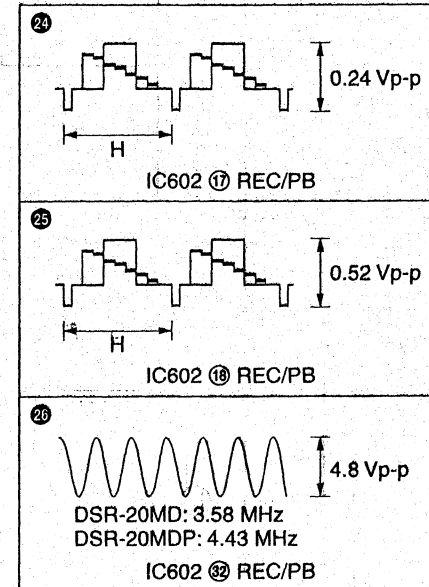
CL1044</



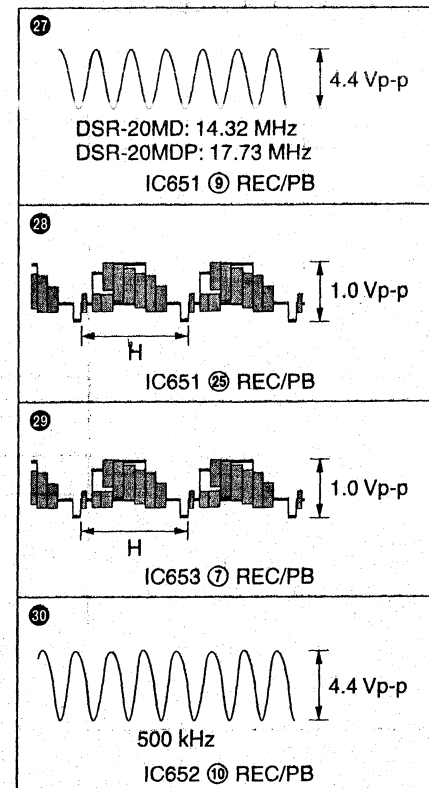
# VA-102 (MONITOR OUT) SCHEMATIC DIAGRAM

• See page 4-65 for VA-102 printed wiring board.

## VA-102 BOARD (4/8)

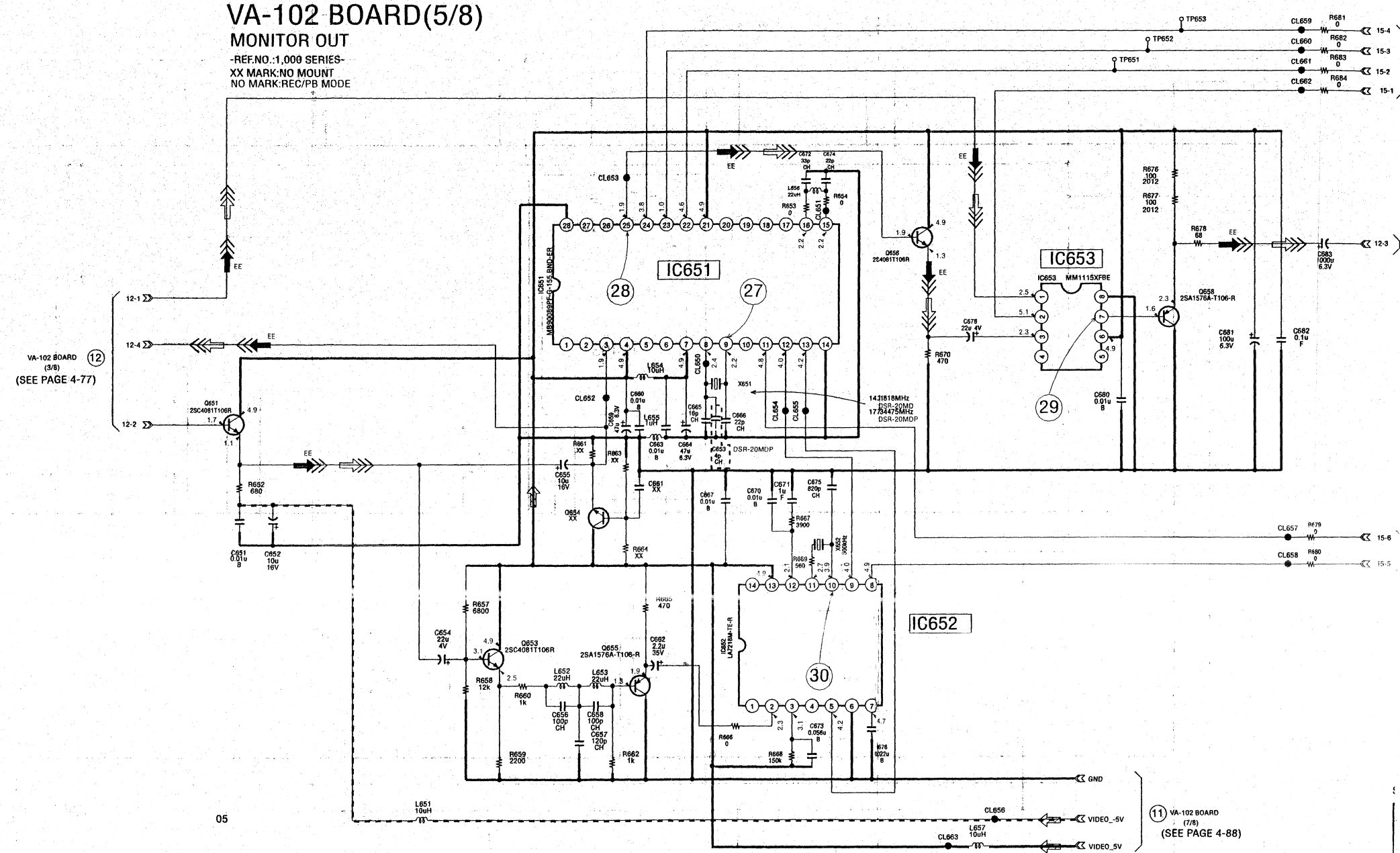


## VA-102 BOARD (5/8)

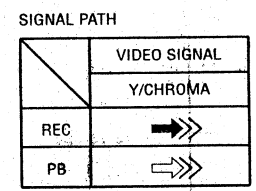


## VA-102 BOARD (5/8)

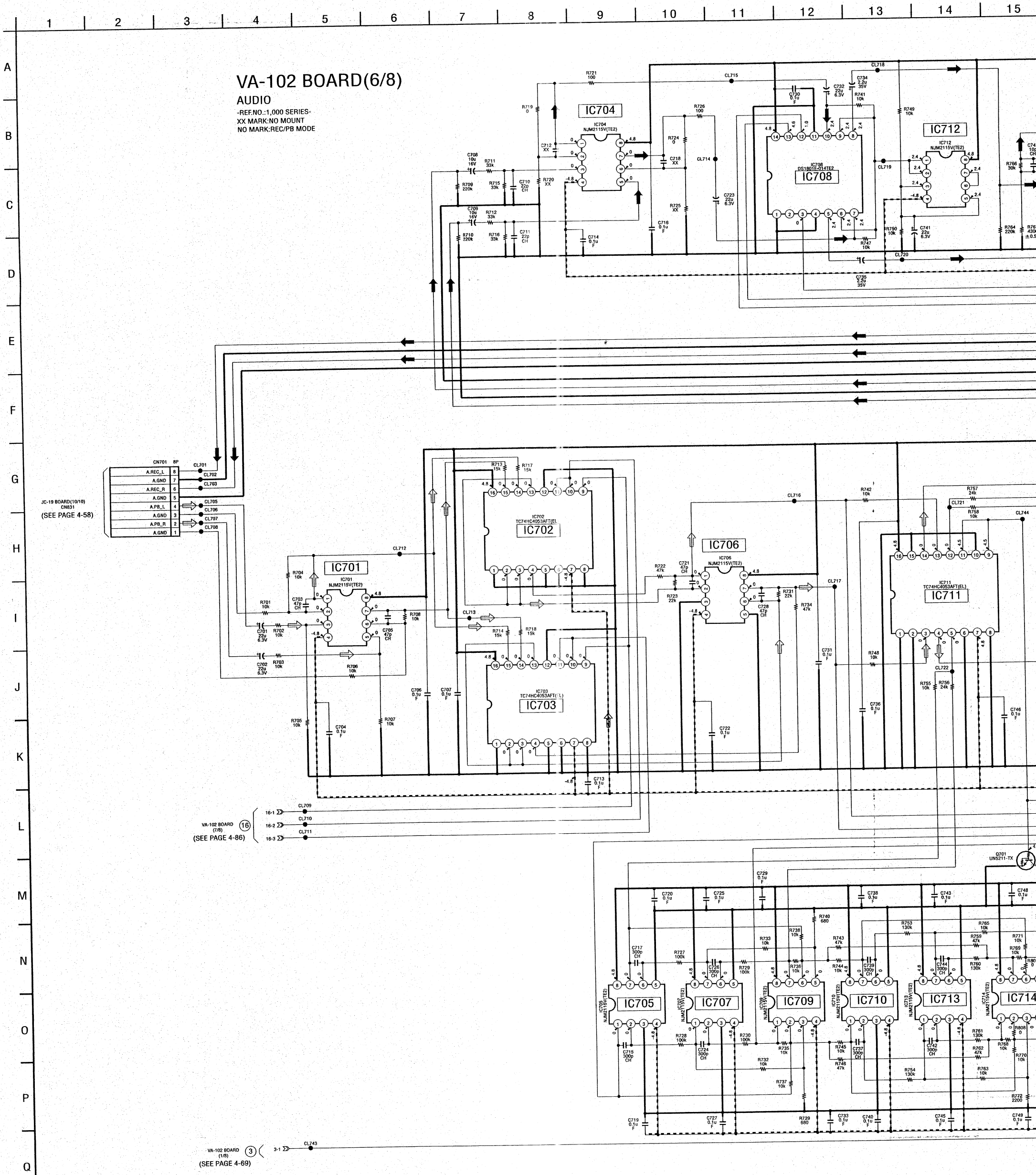
MONITOR OUT  
-REF.NO.:1,000 SERIES-  
XX MARK:NO MOUNT  
NO MARK:REC/PB MODE

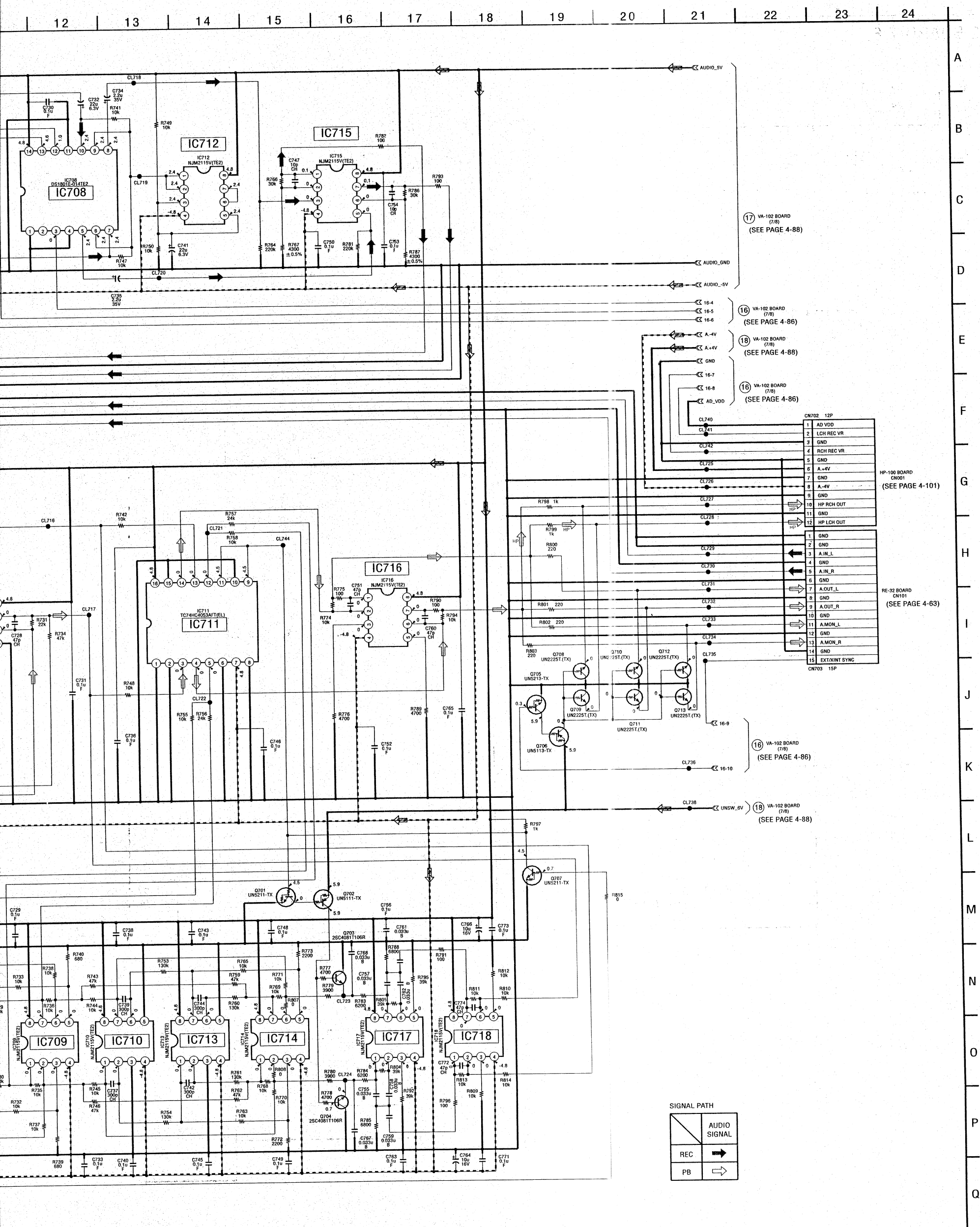


- See page 4-65 for VA-102 printed wiring board.



VA-102 (AUDIO) SCHEMATIC DIAGRAM • See page 4-65 for VA-102 printed wiring board.

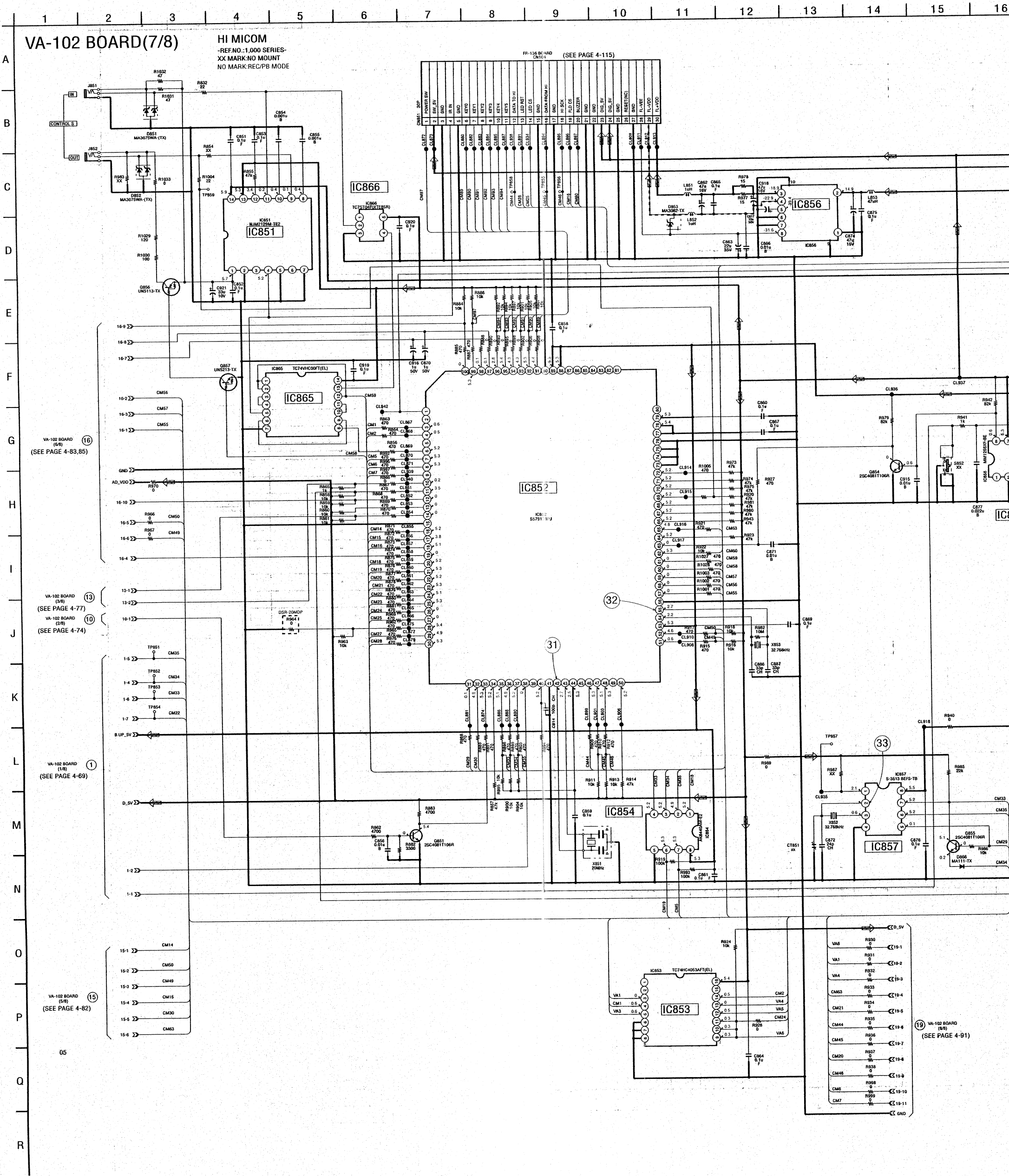


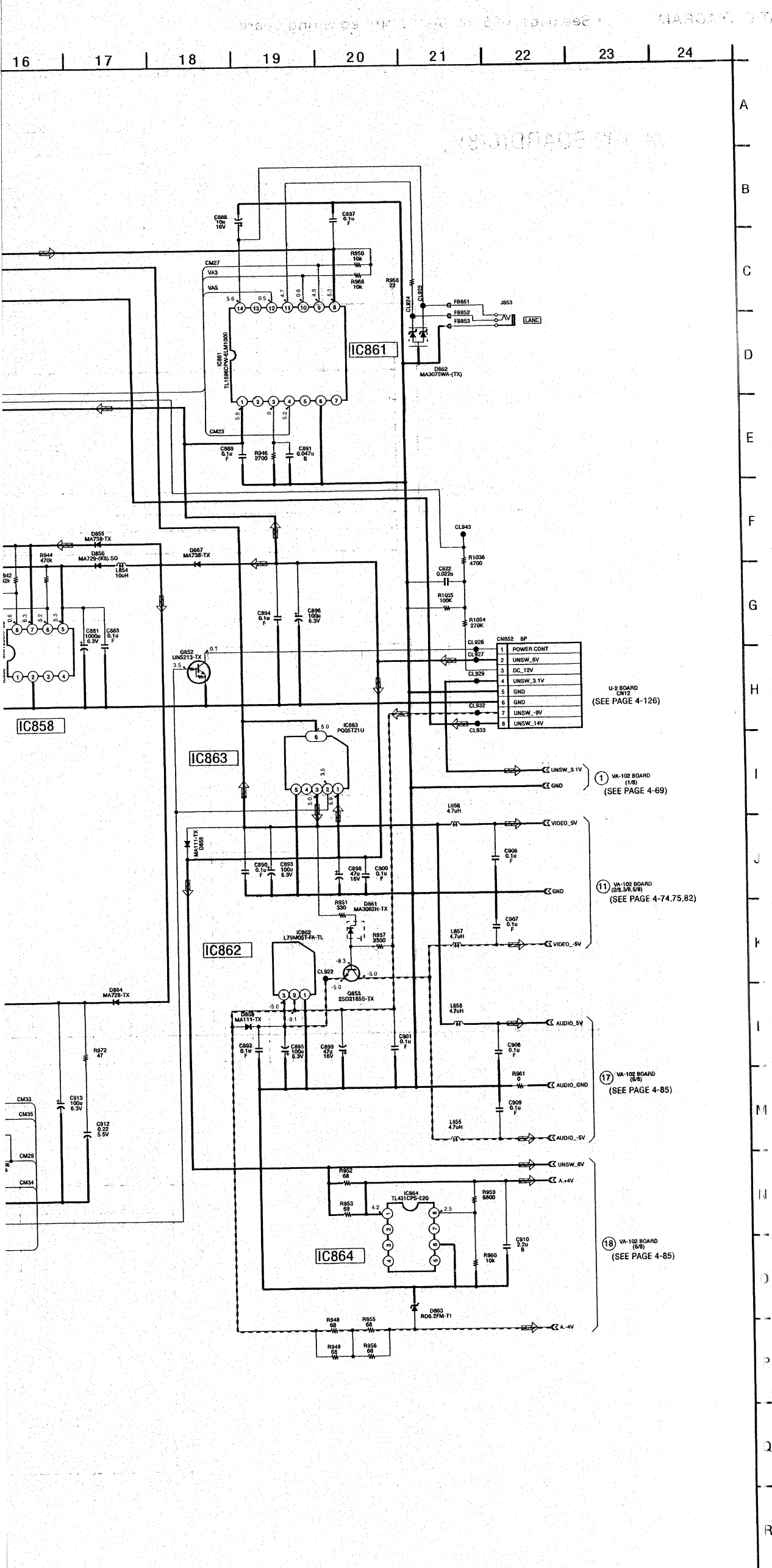




VA-102 (HI MICOM) SCHEMATIC DIAGRAM

• See page 4-65 for VA-102 printed wiring board.







– Ref. No.: RS-78 board; 6,000 series –

- **For Printed Wiring Board.**
- There are few cases that the part isn't mounted in this model is printed on this diagram.

RS-78 BOARD(SIDE A)

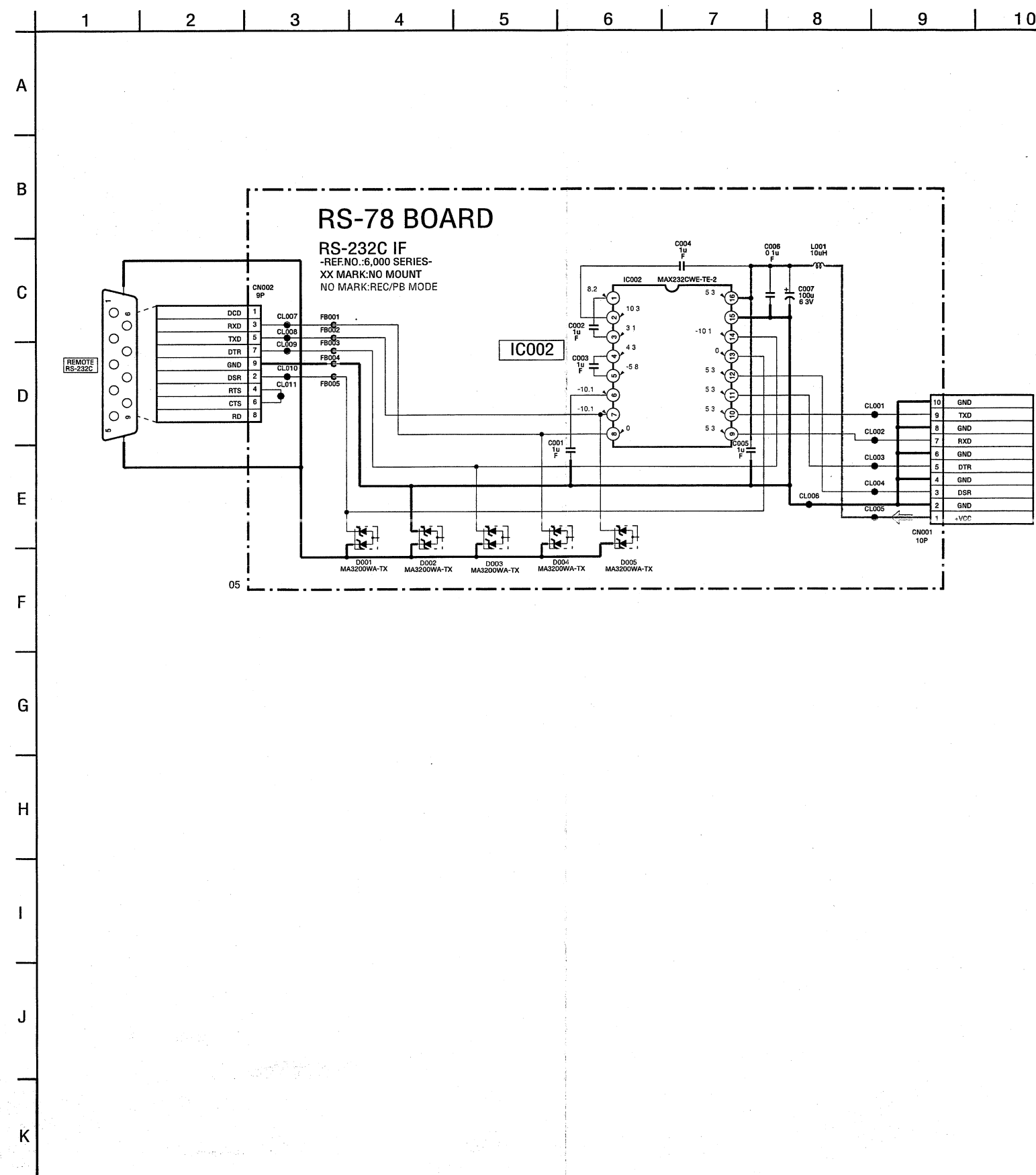


RS-78 BOARD (SIDE B)



### RS-78 (RS-232C IF), VA-102 (RS MICOM) SCHEMATIC DIAGRAM

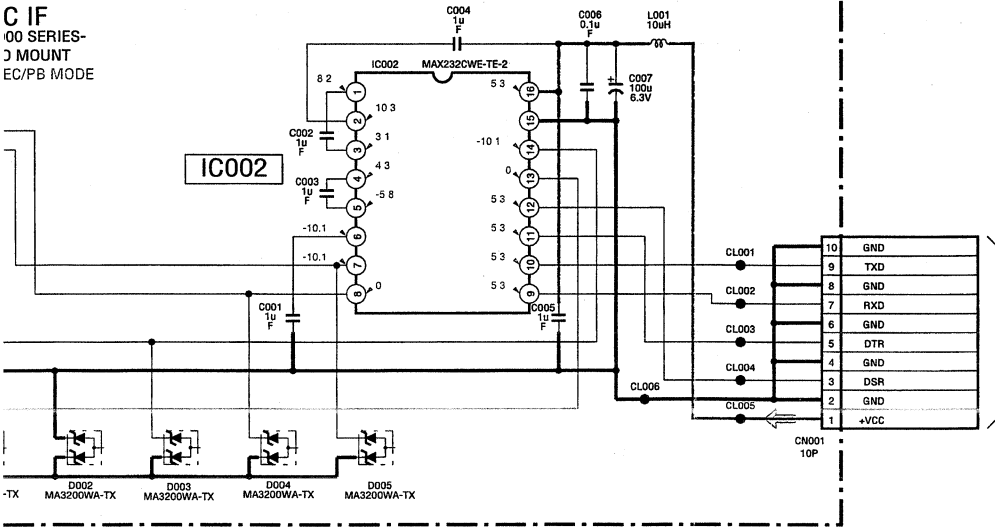
• See page 4-65 for VA-102 printed wiring board.



4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

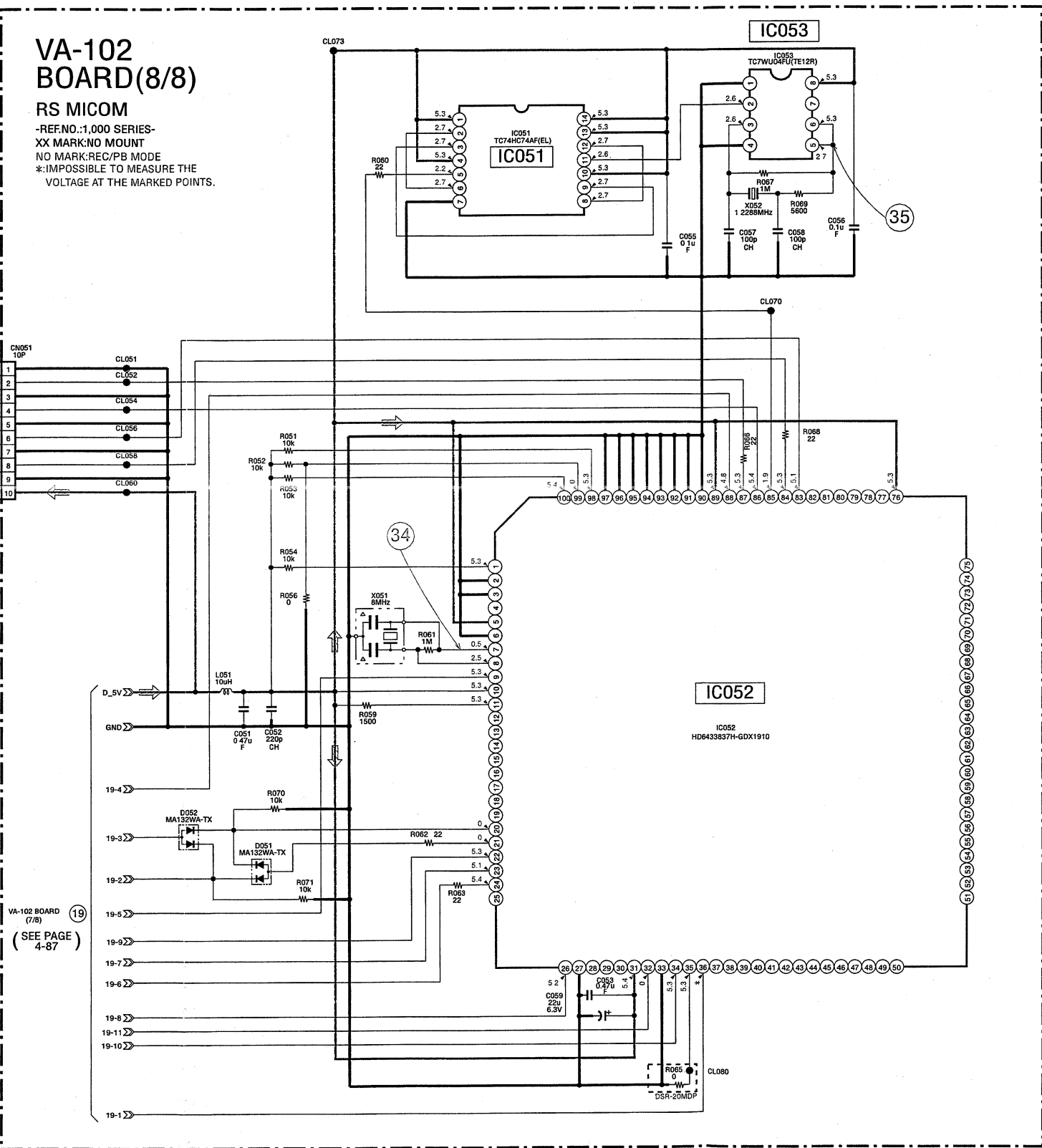
8 BOARD

C IF  
00 SERIES-  
J MOUNT  
EC/PB MODE



VA-102  
BOARD(8/8)

RS MICOM  
-REFNO.:1,000 SERIES-  
XX MARK:NO MOUNT  
NO MARK:REC/PB MODE  
\*:IMPOSSIBLE TO MEASURE THE  
VOLTAGE AT THE MARKED POINTS.

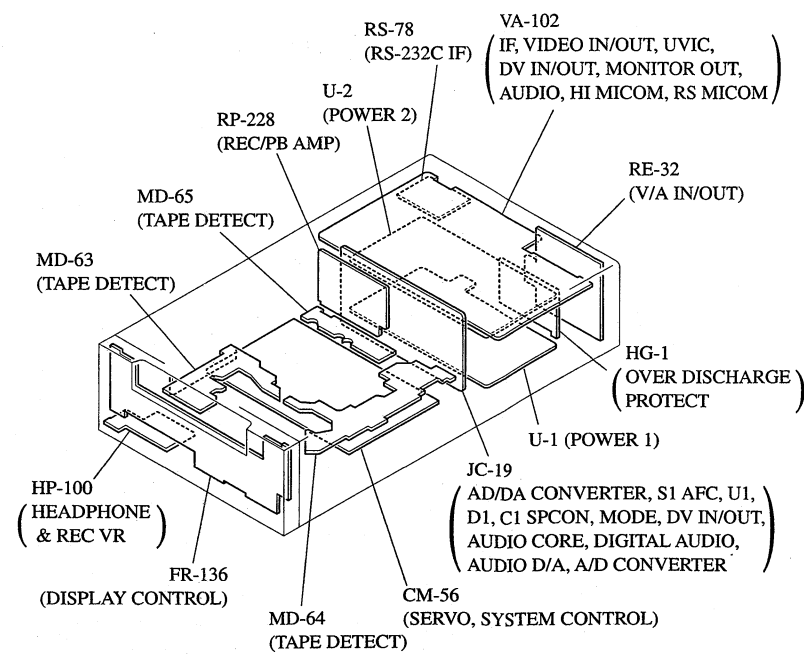
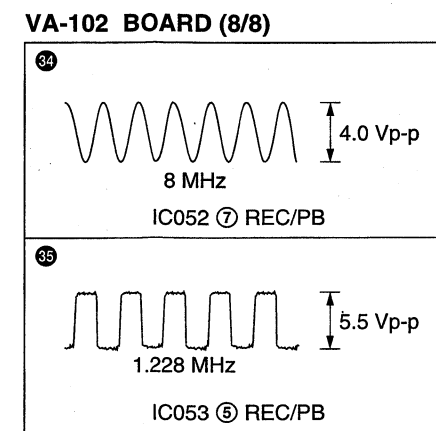
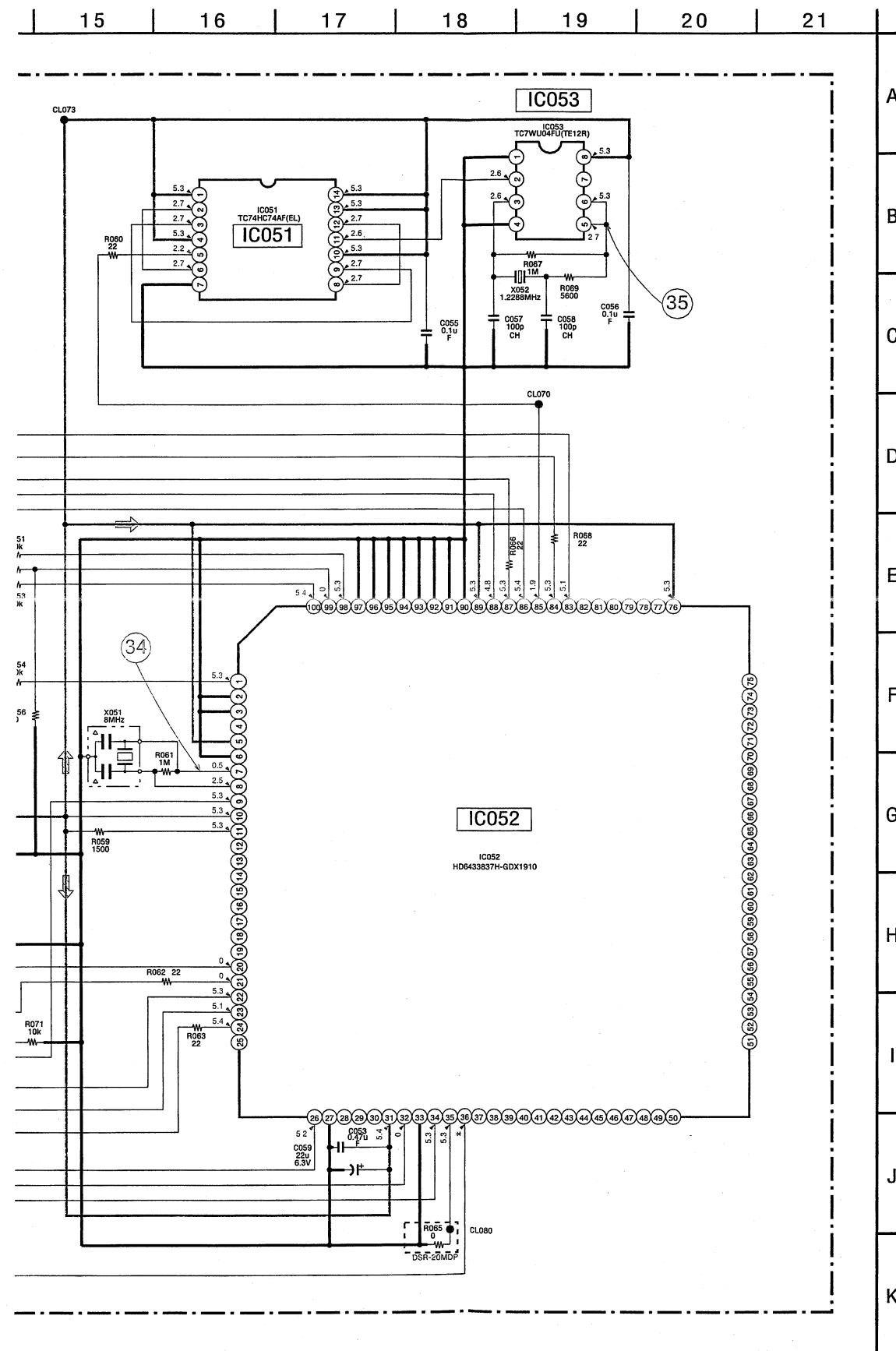


VA-102 BOARD  
(7/8)  
(SEE PAGE  
4-87)

MD  
(TA

HP-  
(HEA  
& R

(DI

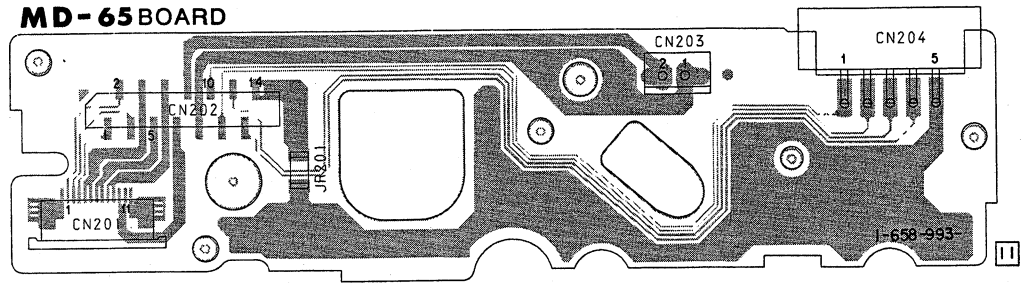


MD-63, MD-64, MD-65 (TAPE DETECT), FP-406 (TAPE SENSOR) PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

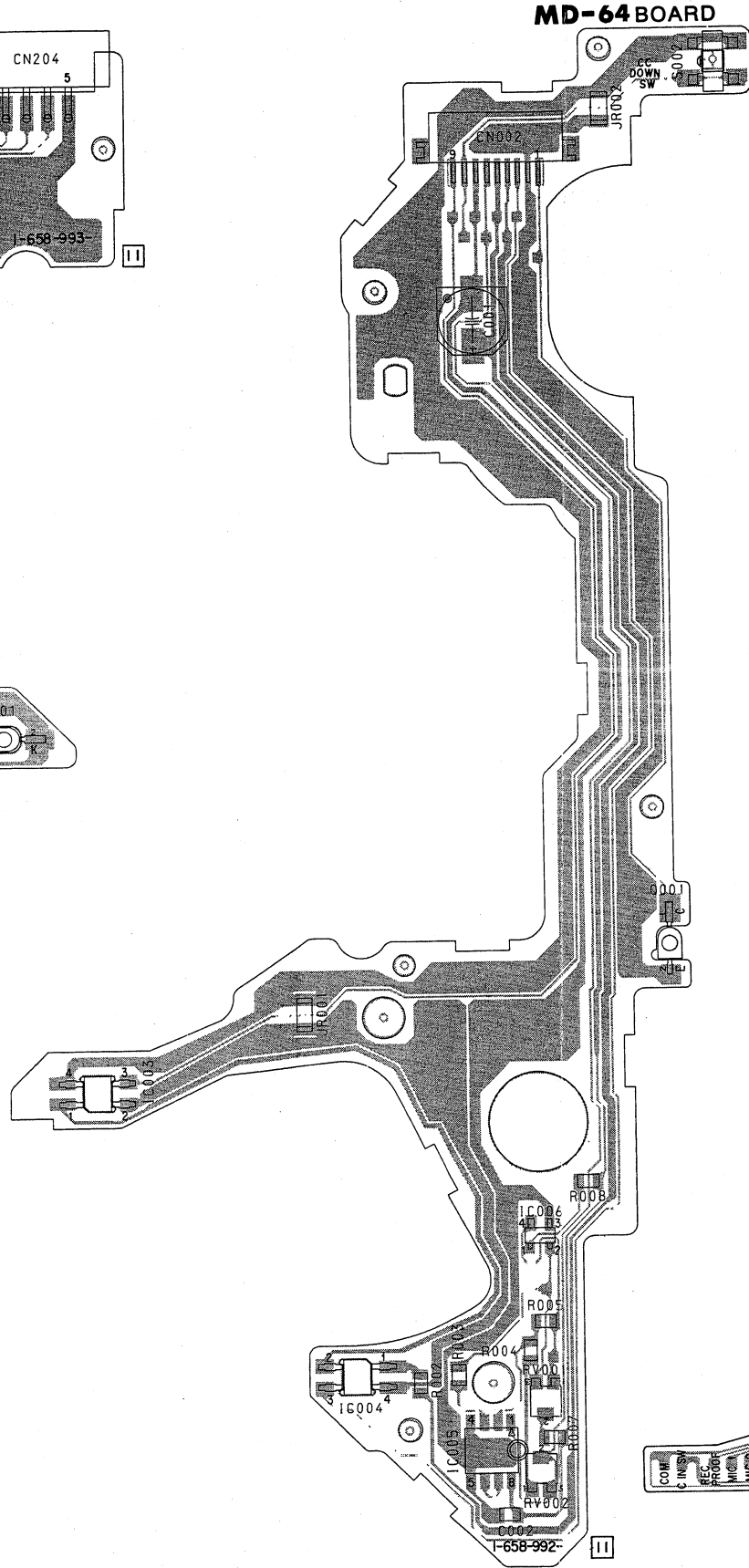
– Ref. No. : MD-63 board; 6,000/MD-64 board; 7,000/MD-65 board; 5,000/FP-406 board; 5,000 series –

- For Printed Wiring Board.
- There are few cases that the part isn't mounted in this mod is printed on this diagram.

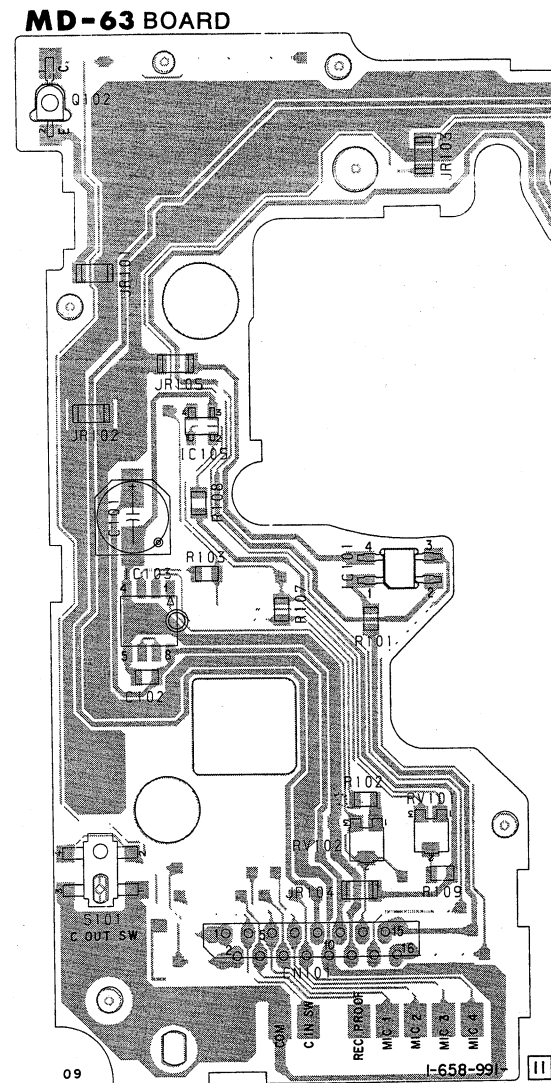
MD-65 BOARD



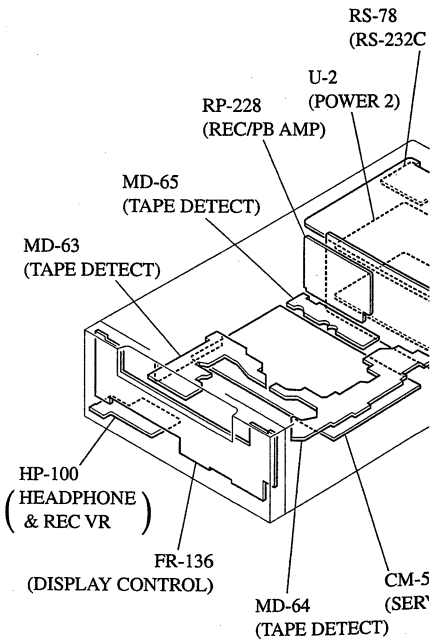
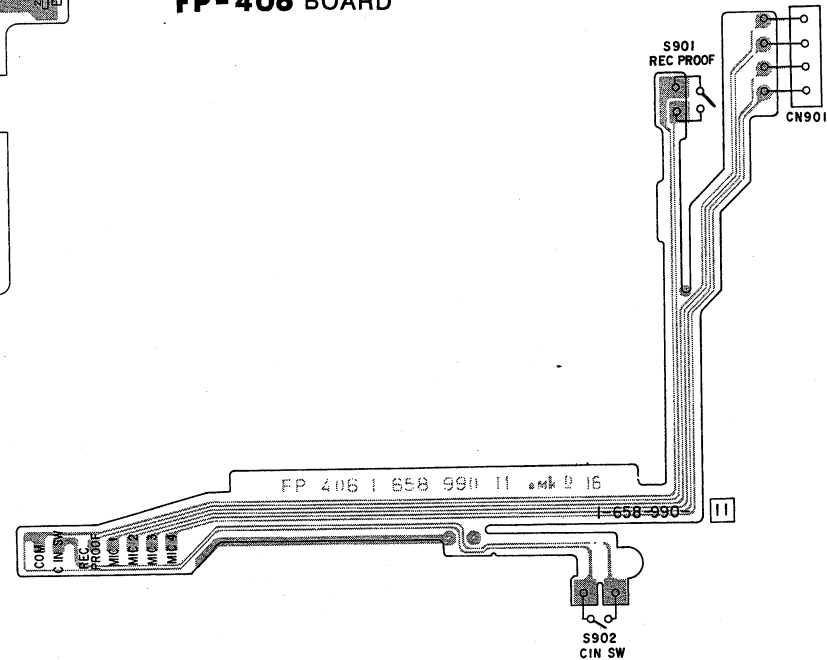
MD-64 BOARD



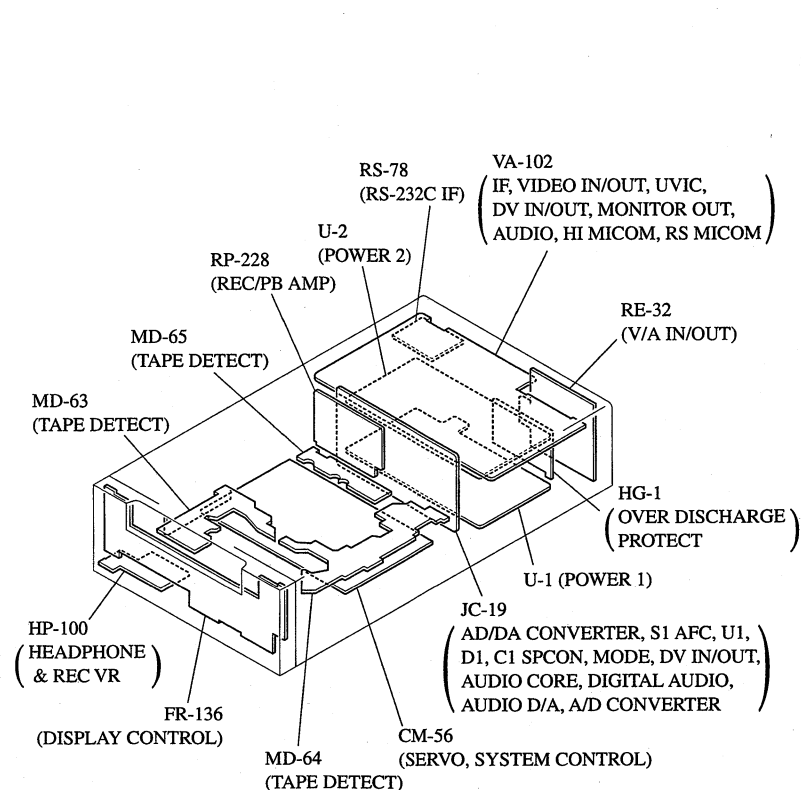
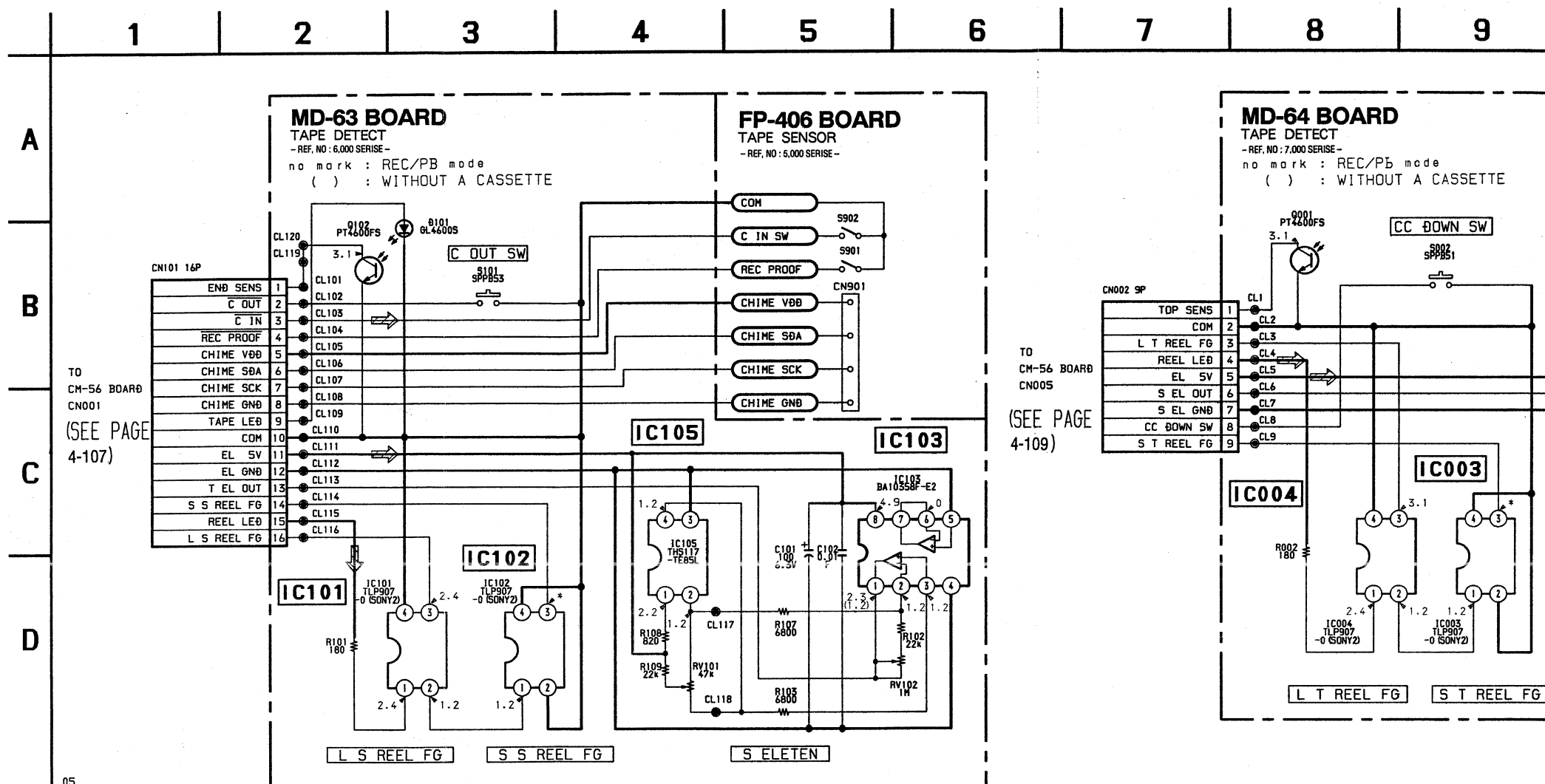
MD-63 BOARD

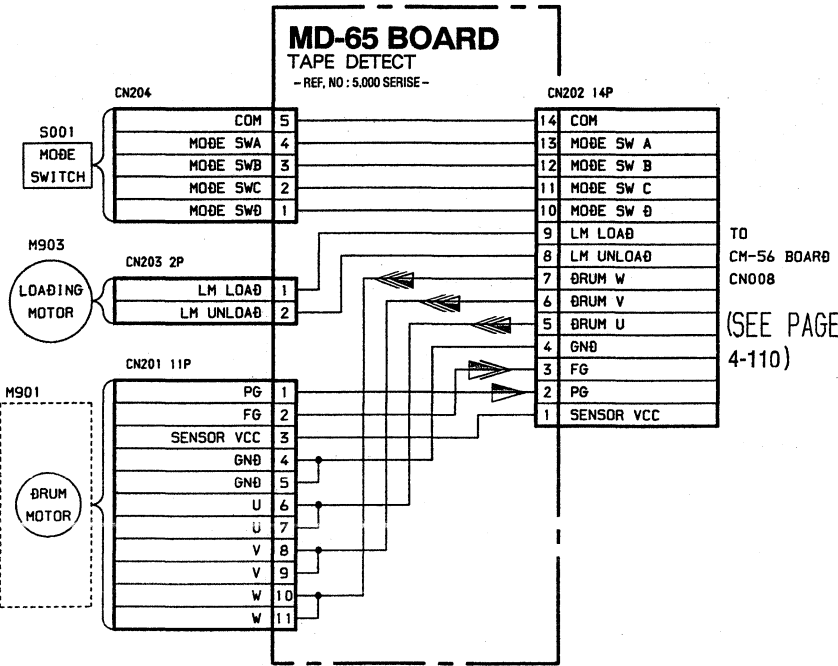
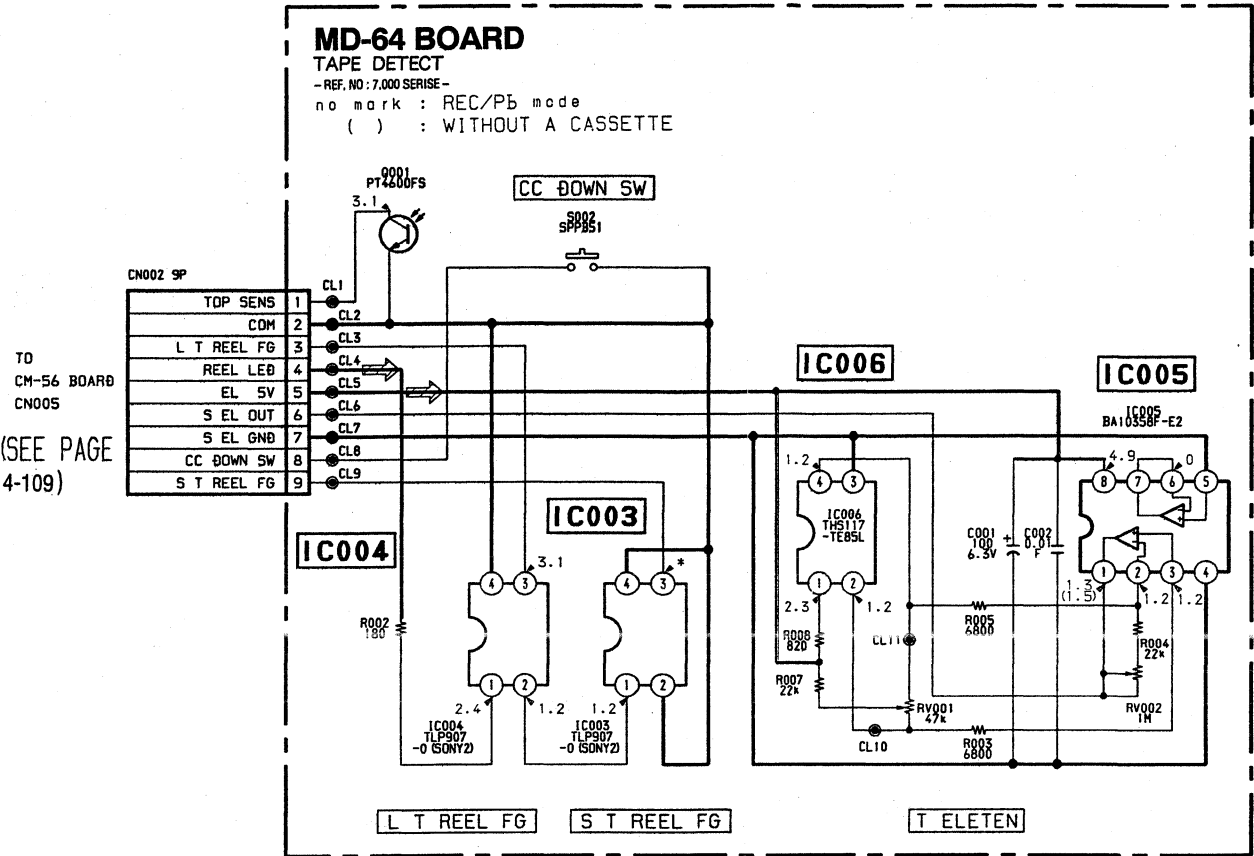
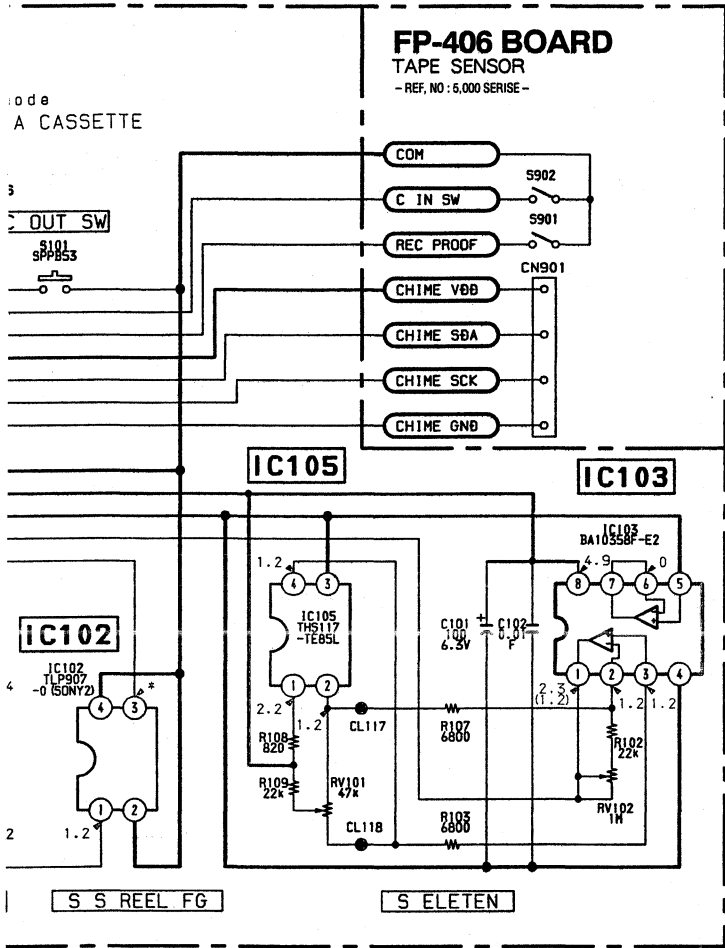


FP-406 BOARD



- For Printed Wiring Board.
- There are few cases that the part isn't mounted in this model is printed on this diagram.



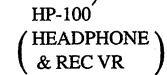


• SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo		▶	
Drum phase servo		▶▶	
Drum servo (speed and phase)		▶▶▶	
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)			
Ref. signal			



– Ref. No.: HP-100 board; 5,000 series –



## HP-100 (HEADPHONE &amp; REC VR) SCHEMATIC DIAGRAM

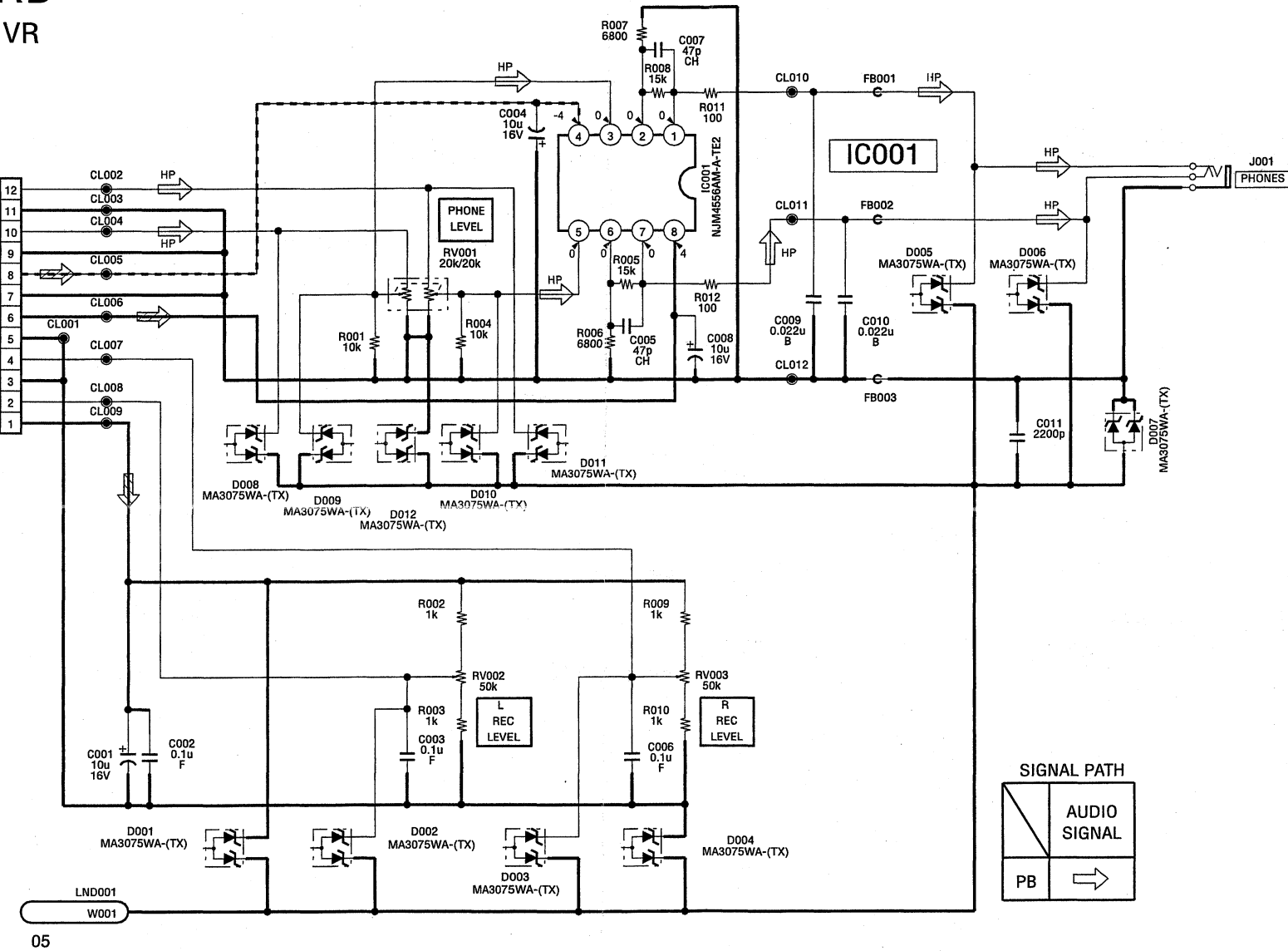
# HP-100 BOARD

## HEADPHONE & REC VR

-REF.NO.:5,000 SERIES-  
XX MARK:NO MOUNT  
NO MARK:REC/PB MODE

VA-102 BOARD(6/8)  
CN702  
(SEE PAGE  
4-85)

CN001 12P	
HP LCH OUT	12
GND	11
HP RCH OUT	10
GND	9
A-4V	8
GND	7
A-4V	6
GND	5
RCH REC VR	4
GND	3
LCH REC VR	2
AD VDD	1

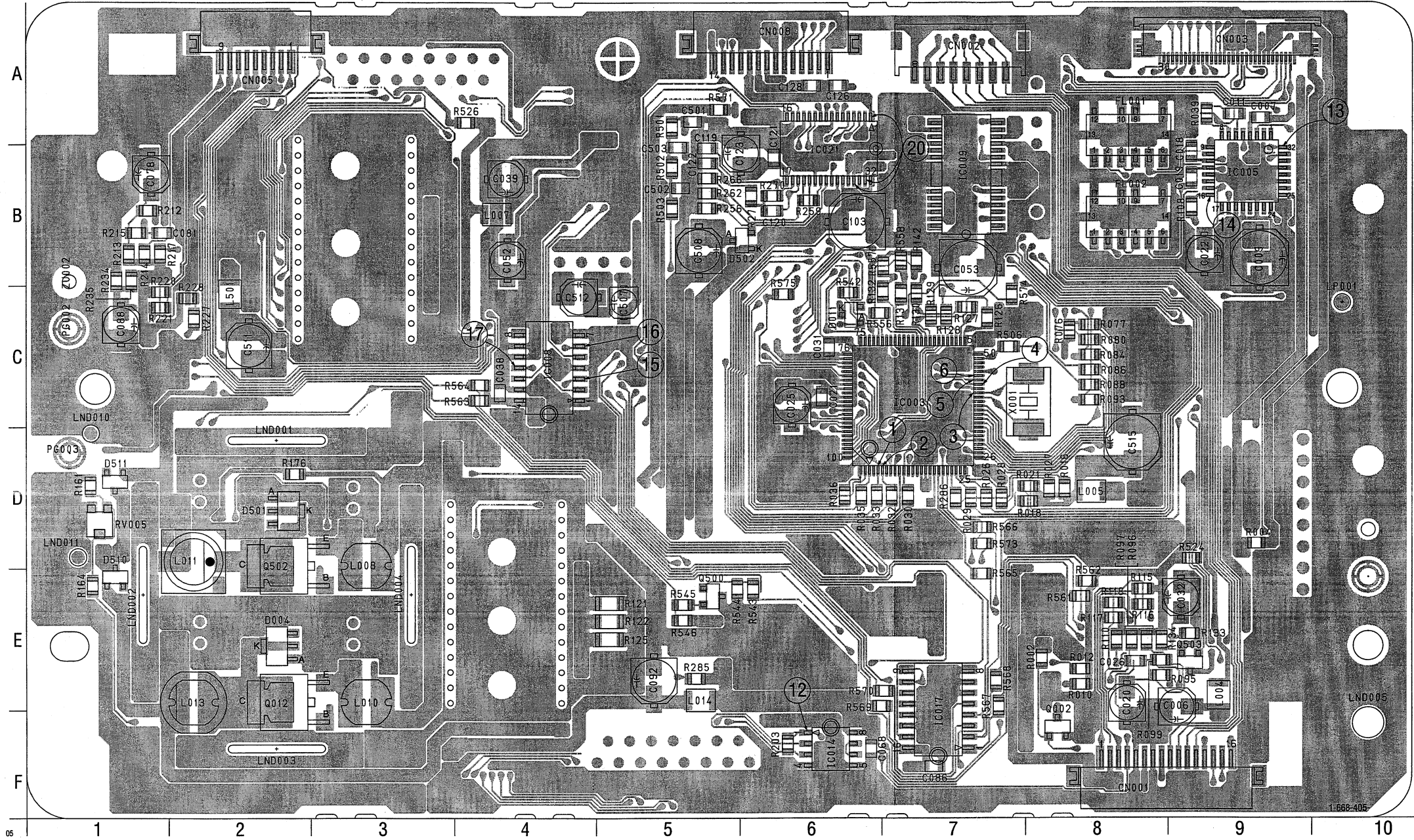


05

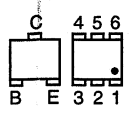
CM-56 (SERVO, SYSTEM CONTROL) PRINTED WIRING BOARD

— Ref. No.: CM-56 board; 4,000 series —

CM-56 BOARD (SIDE A)



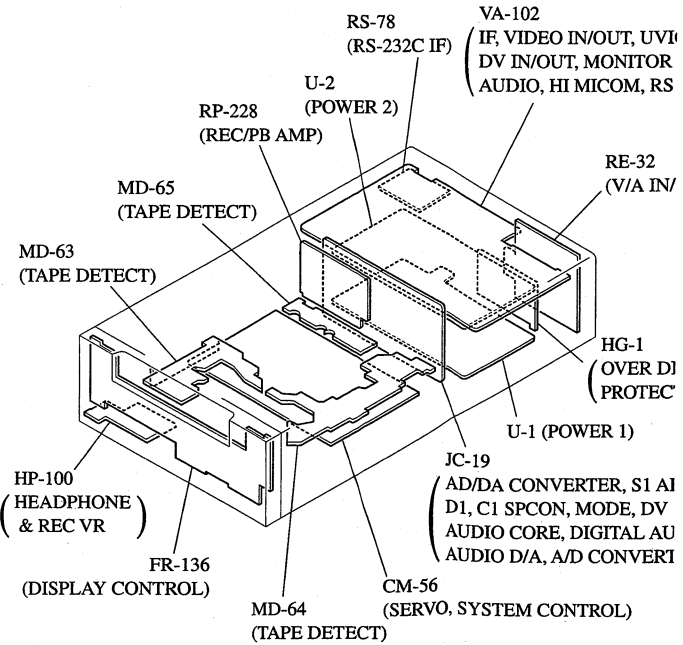
- For Printed Wiring Board.
- There are few cases that the part isn't mounted in this model is printed on this diagram.
- Chip transistor



21 :DSR-20MDP  
12 :DSR-20MD

CM-56 BOARD (SIDE A)

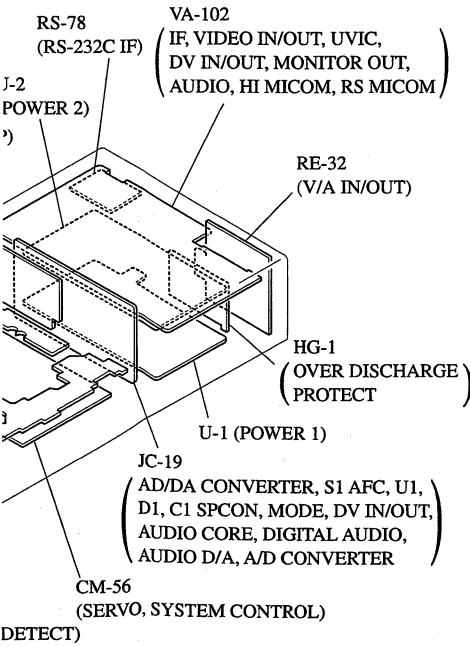
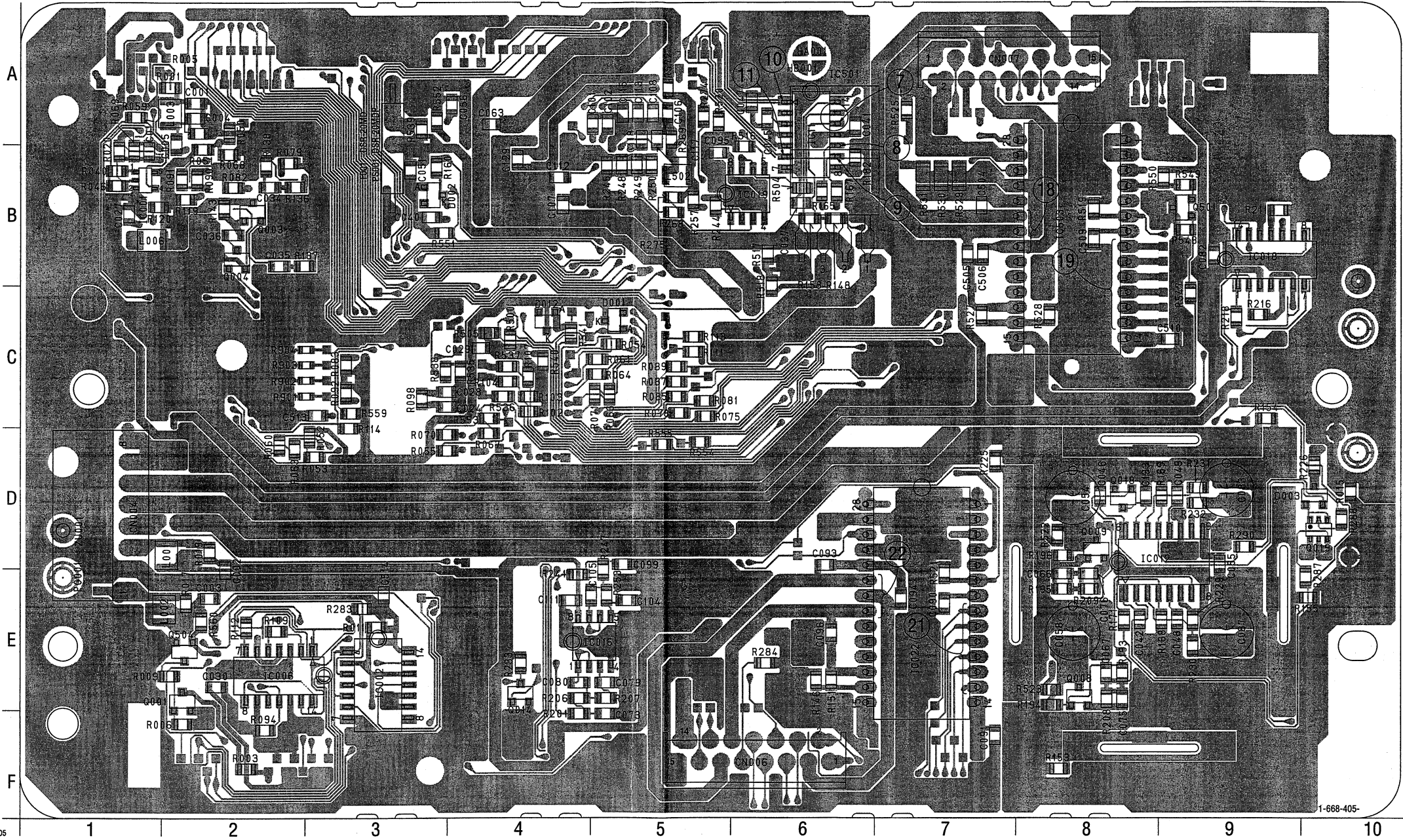
CN001	F-8
CN002	A-7
CN003	A-9
CN005	A-2
CN008	A-6
D004	E-2
D011	C-6
D501	D-2
D502	B-5
IC003	C-7
IC005	B-9
IC008	C-4
IC009	B-7
IC014	F-6
IC017	F-7
IC021	A-6
Q002	F-8
Q012	E-2
Q500	E-5
Q502	D-2
Q503	E-9





CM-56 BOARD (SIDE B)

mounted in this model is



21	:DSR-20MDP
12	:DSR-20MD

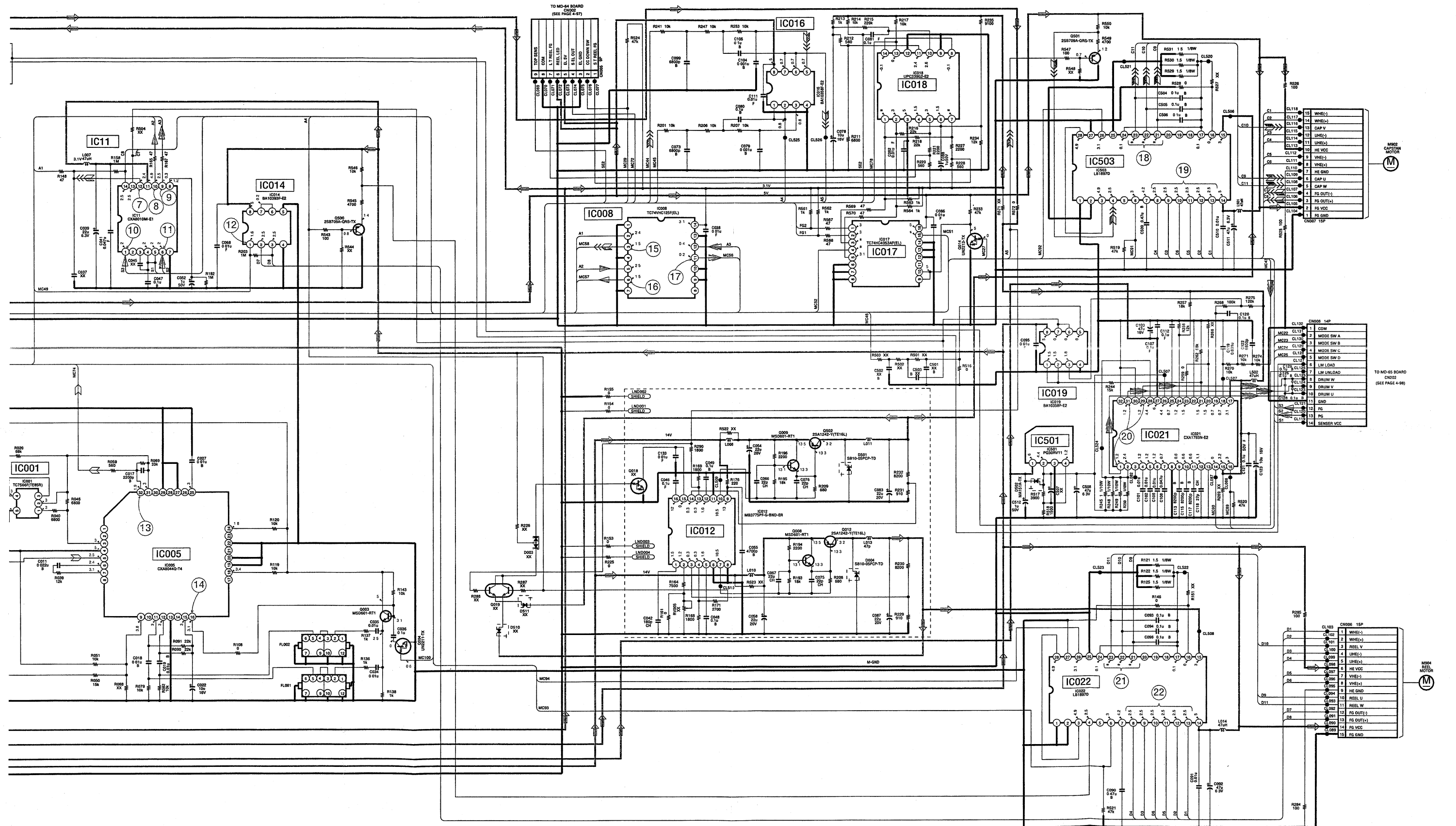
CM-56 BOARD  
(SIDE B)

CN004	D-1
CN006	F-5
CN007	A-7
D001	C-5
D002	B-3
D012	C-4
IC001	B-1
IC002	E-3
IC006	E-2
IC011	A-6
IC012	D-8
IC016	E-4
IC018	B-9
IC019	B-6
IC022	D-7
IC501	B-6
IC503	B-8
Q001	E-2
Q003	B-2
Q004	B-2
Q008	E-8
Q009	D-8
Q014	E-4
Q501	B-9
Q504	E-2

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

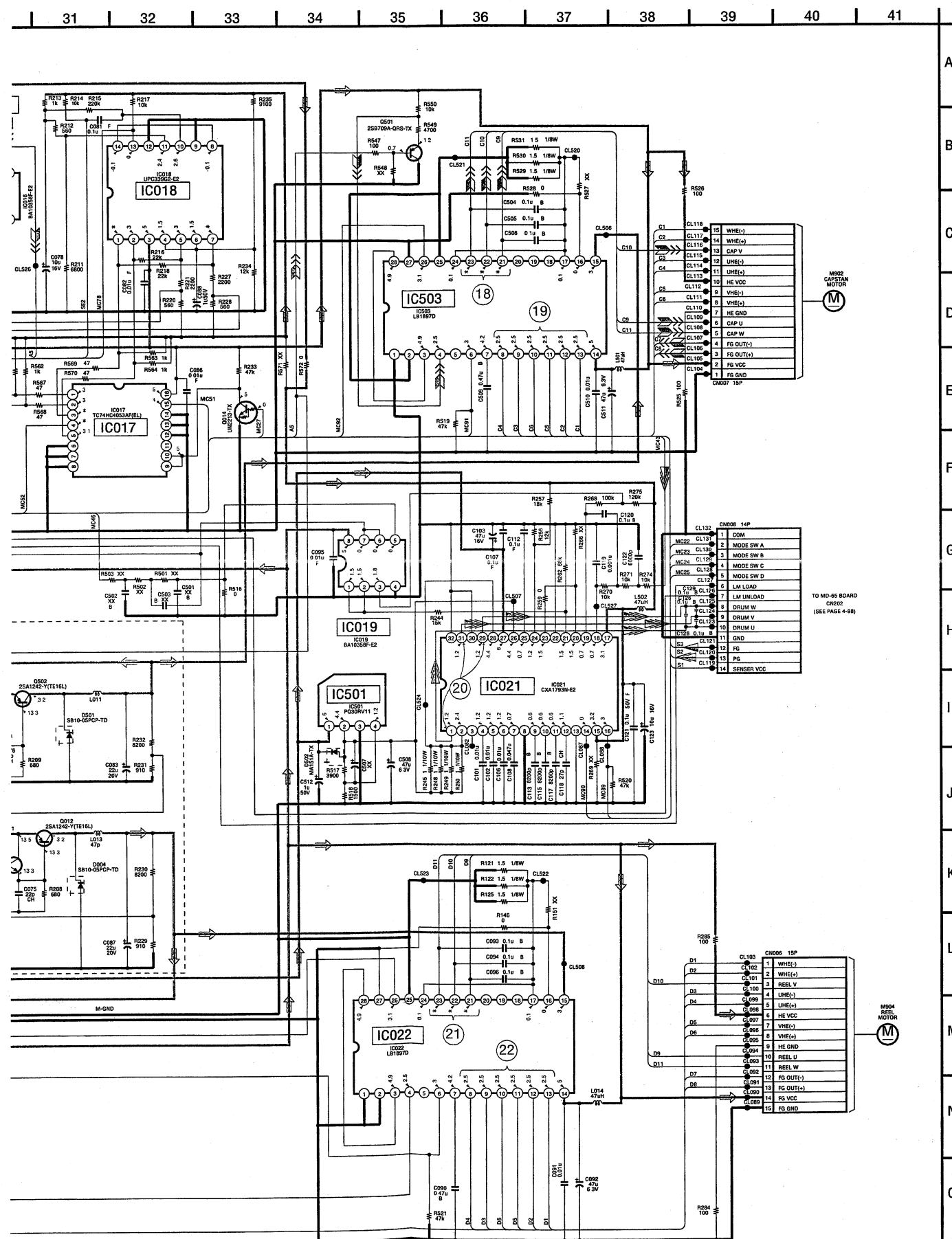






The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

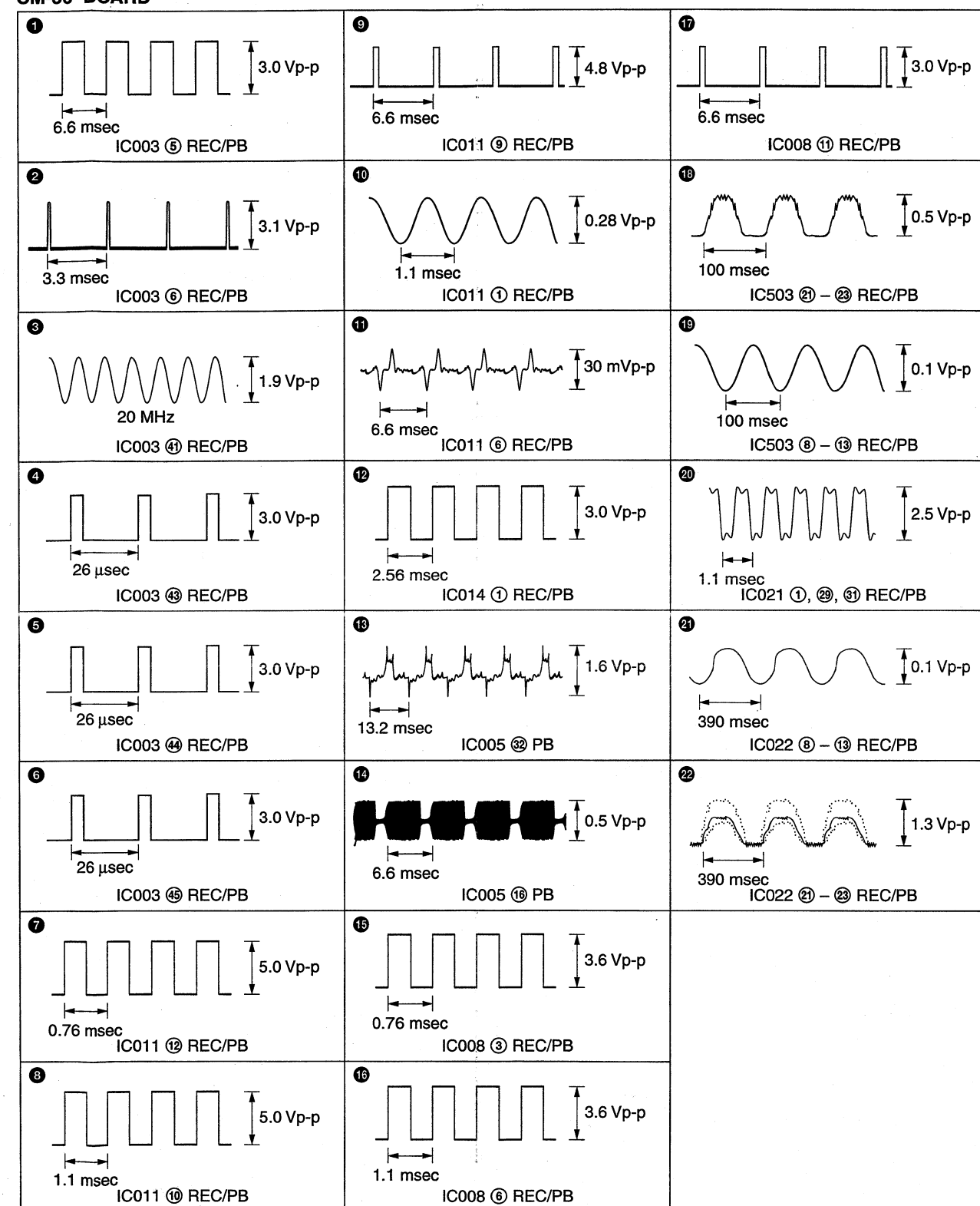
Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



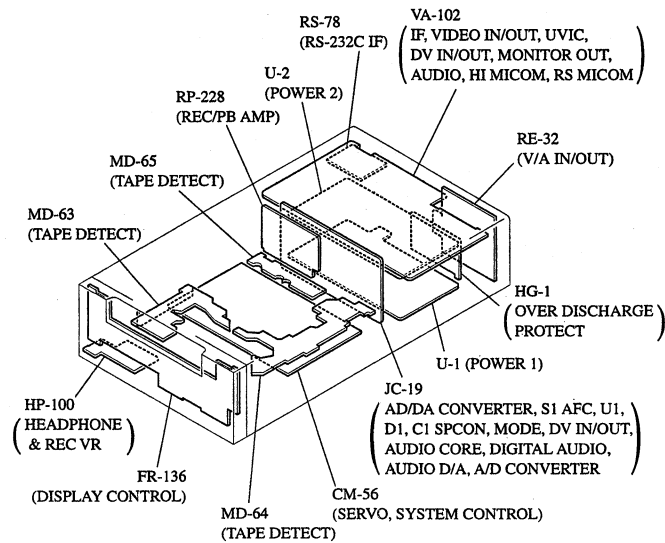
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

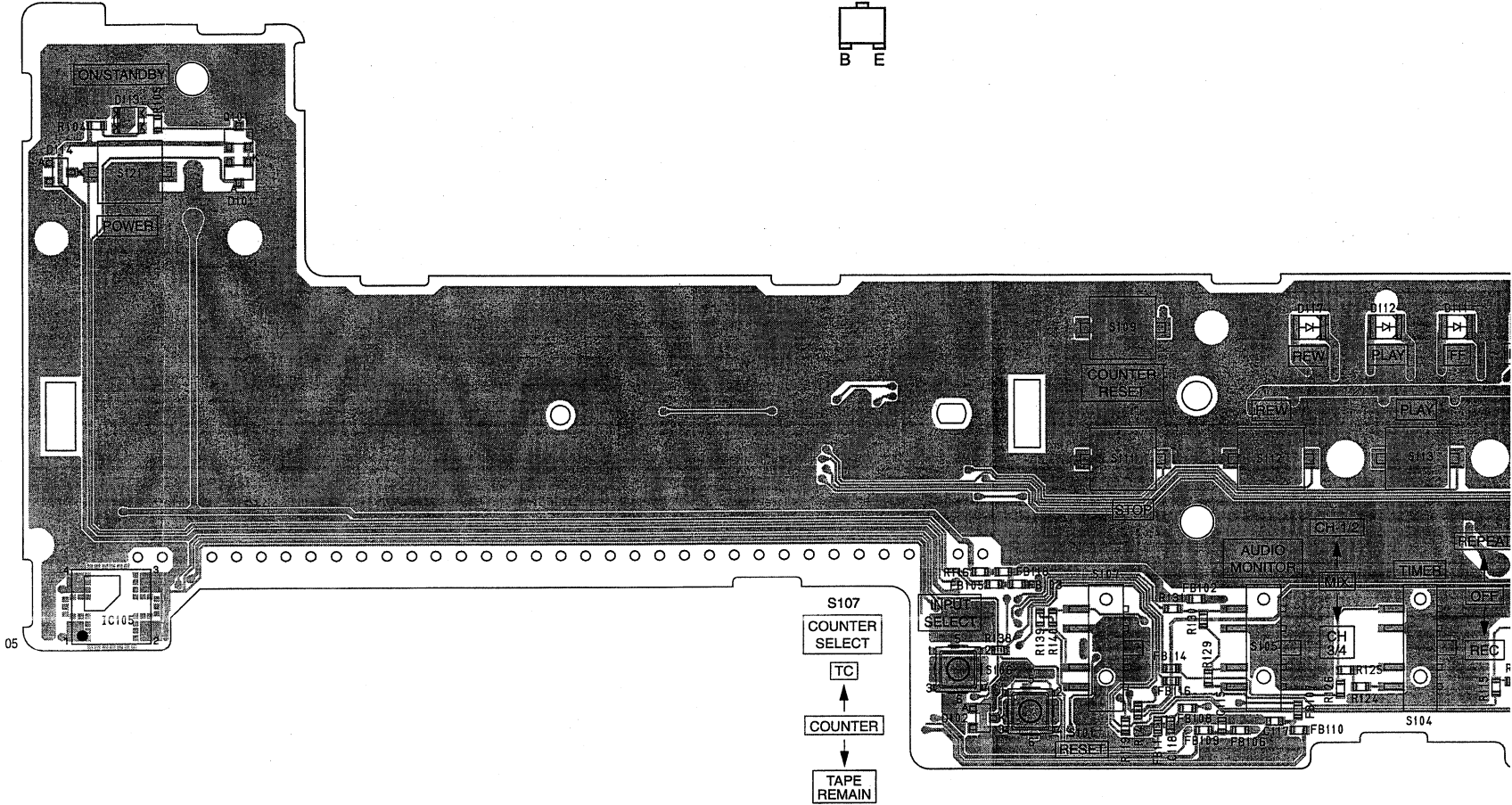
## CM-56 BOARD



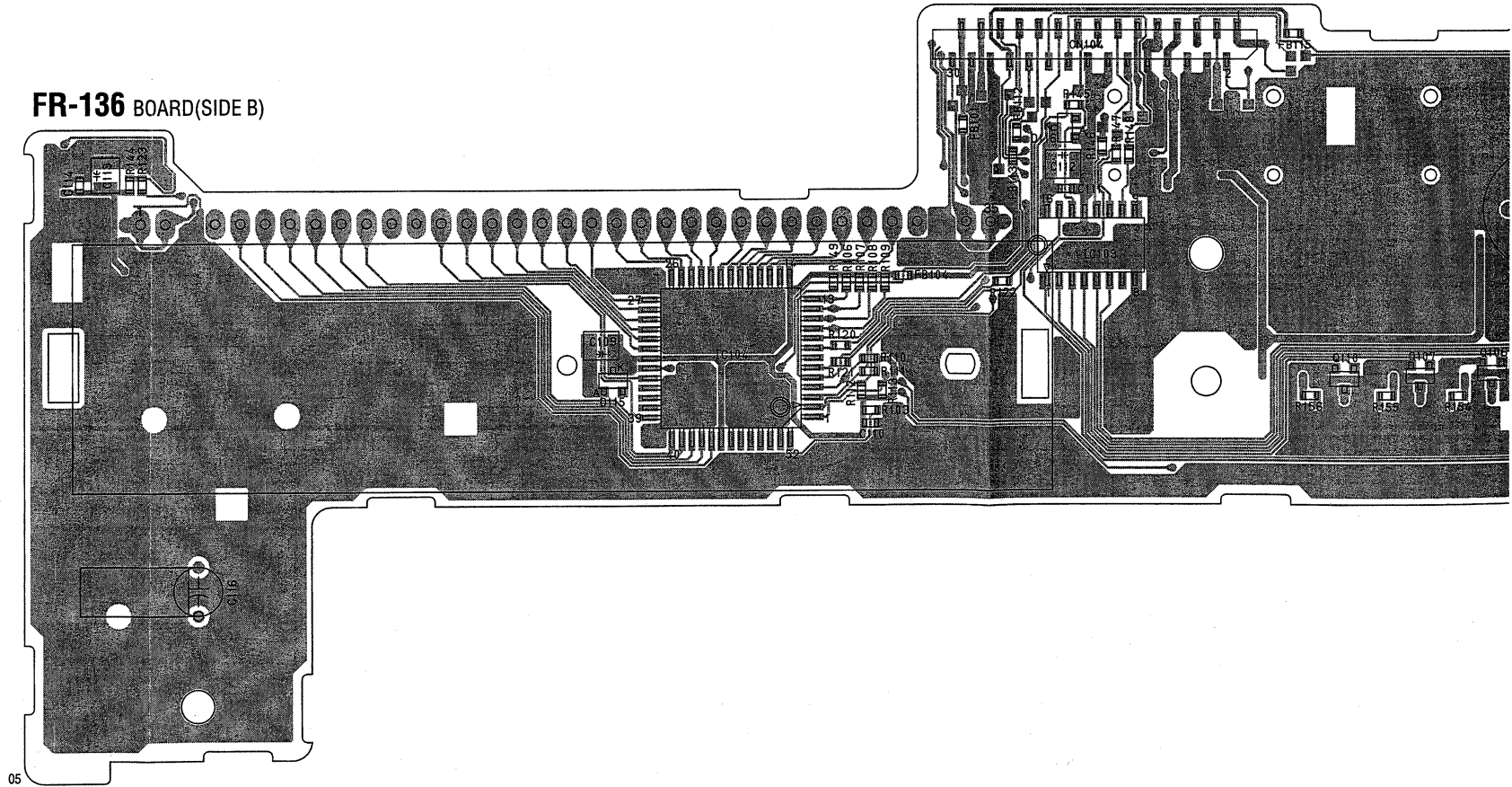
FR-136 (DISPLAY CONTROL) PRINTED WIRING BOARD  
- Ref. No.: FR-136 board; 5,000 series -



FR-136 BOARD(SIDE A)

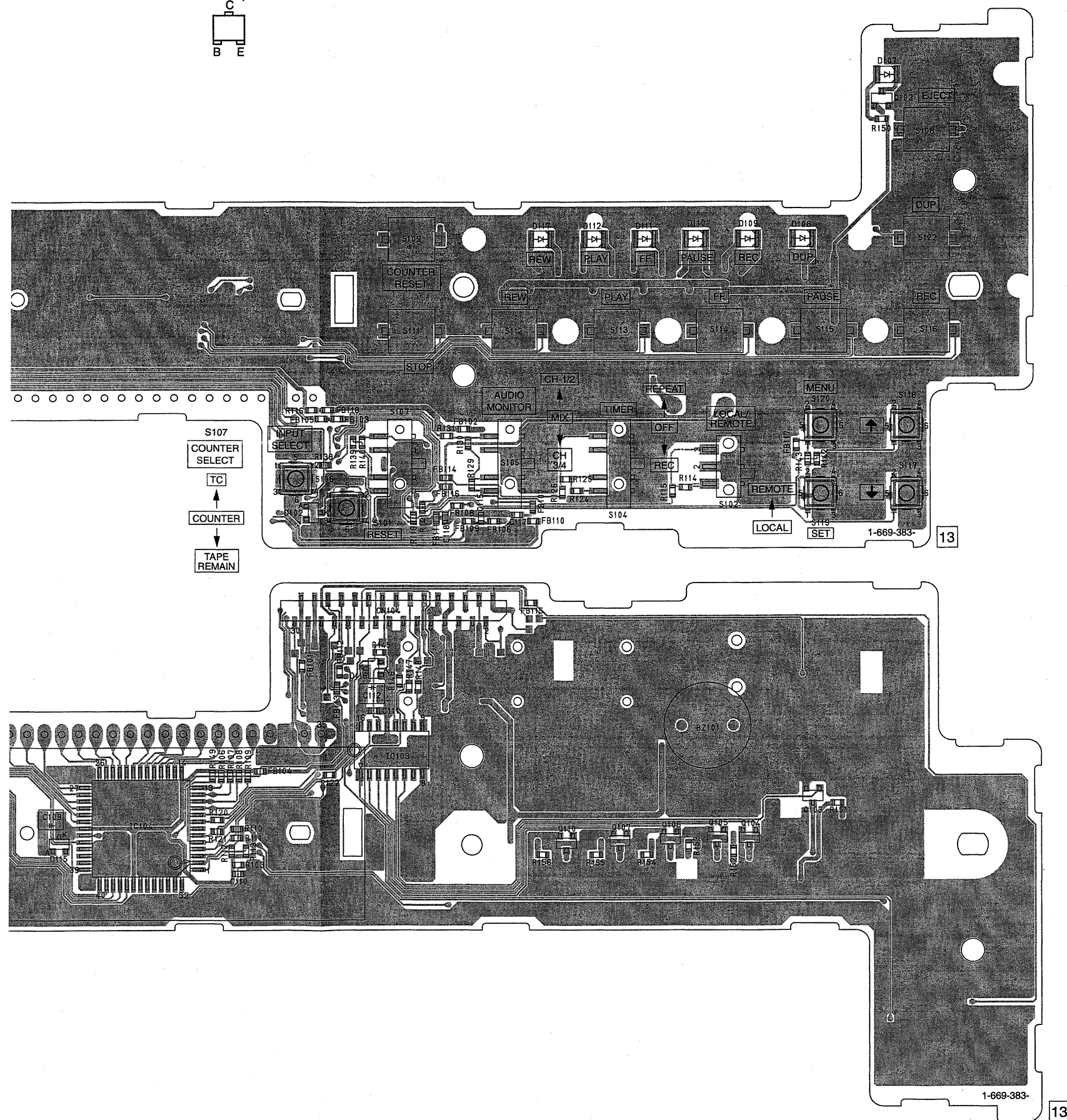


FR-136 BOARD(SIDE B)





- For Printed Wiring Board.
- There are few cases that the part isn't mounted in this model is printed on this diagram.
- Chip transistor



FR-136 (DISPLAY CONTROL) SCHEMATIC DIAGRAM

FR-136 BOARD

DISPLAY CONTROL

-REF.NO.:5,000 SERIES-

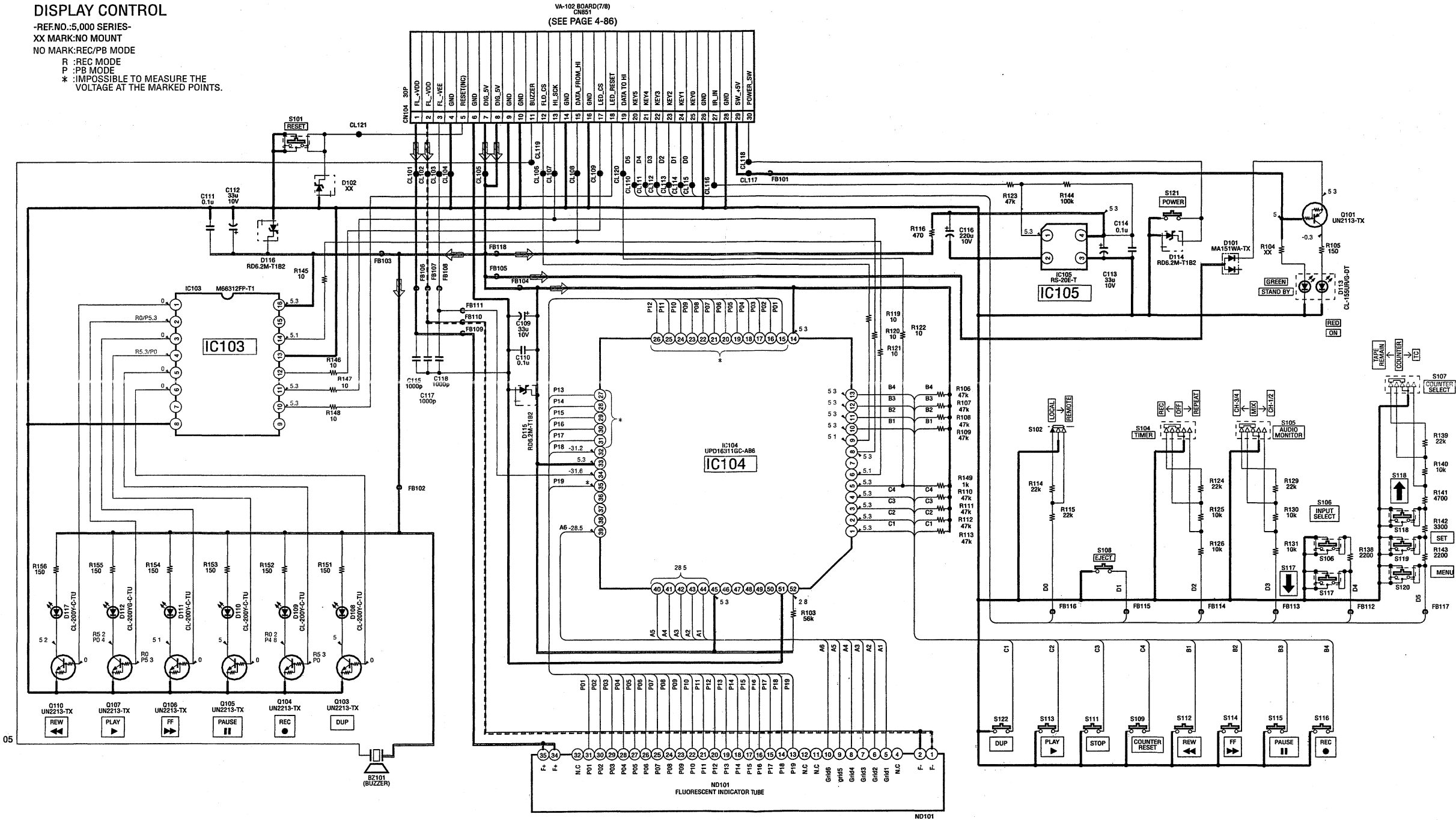
XX MARK:NO MOUNT

NO MARK:REC/PB MODE

R : REC MODE

P : PB MODE

\* : IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.

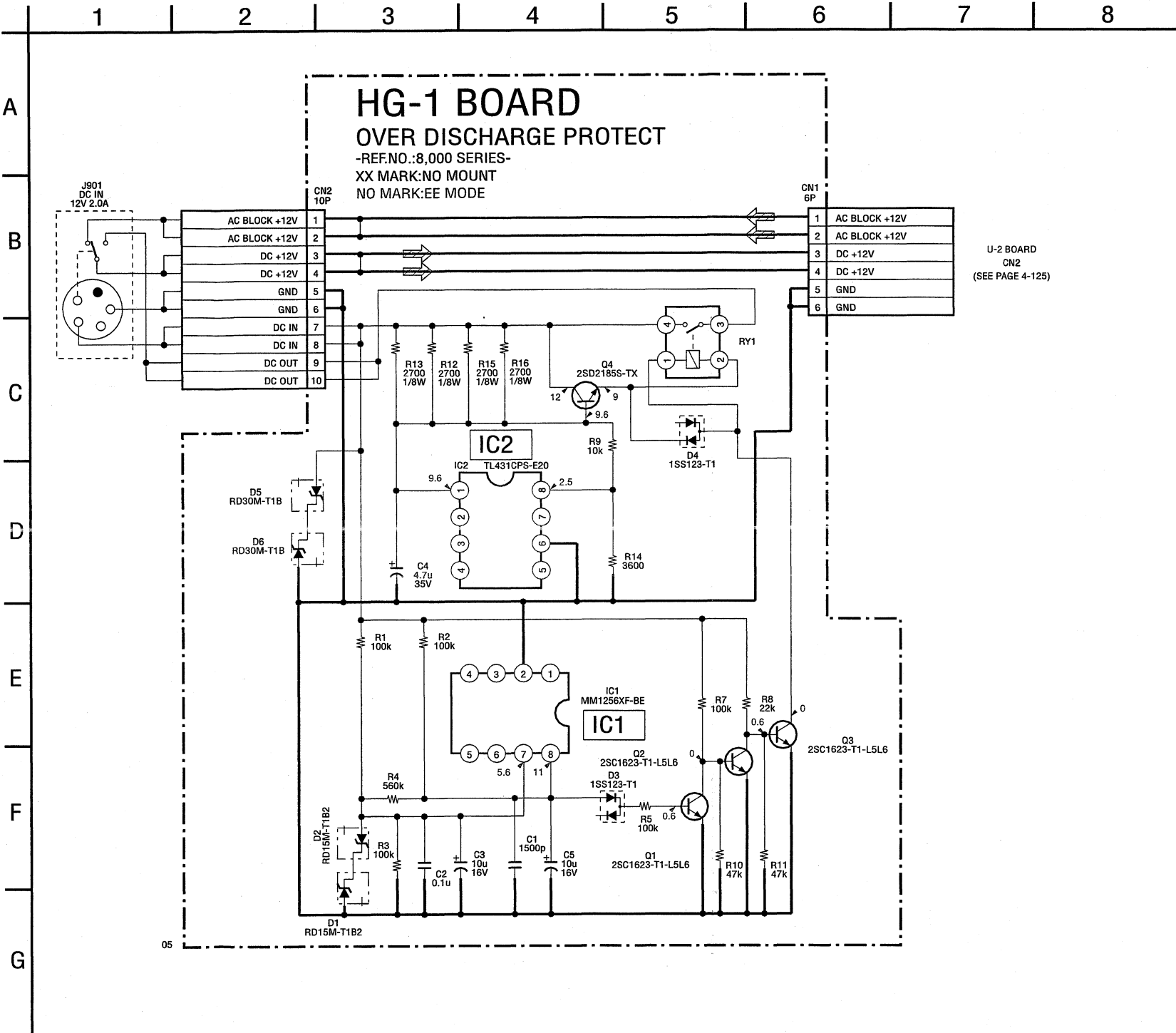
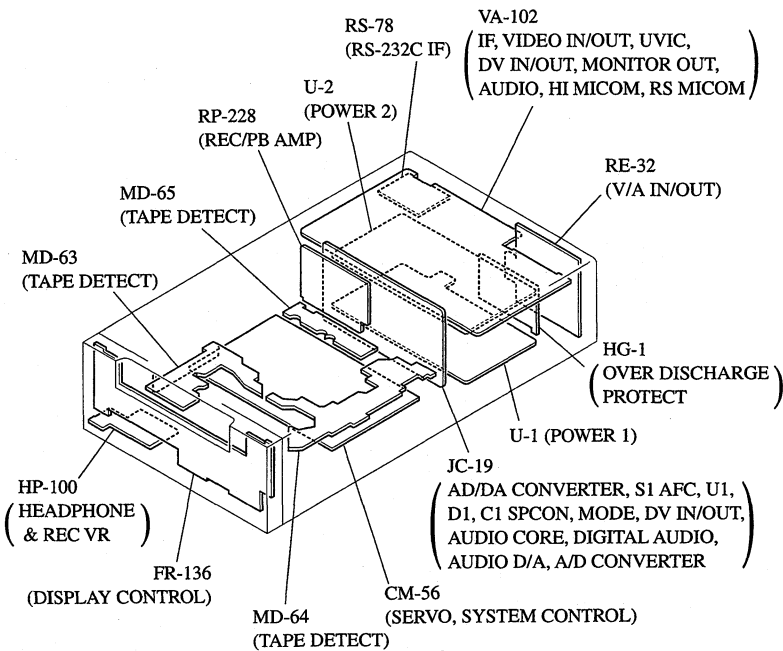
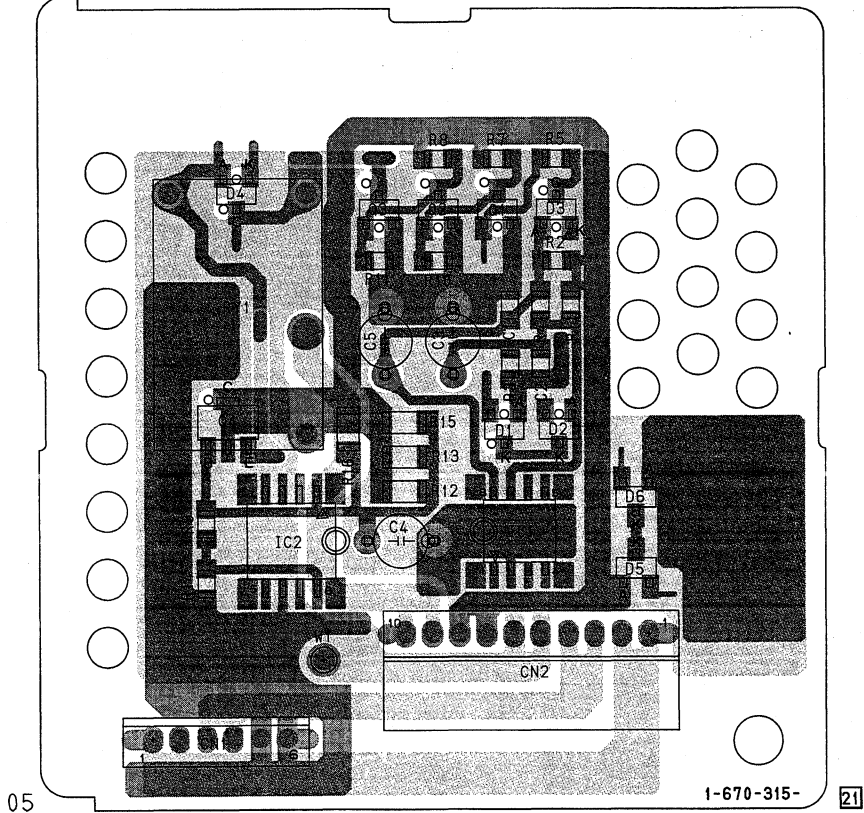




HG-1 (OVER DISCHARGE PROTECT) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM  
- Ref. No.: HG-1 board; 8,000 series -

- For Printed Wiring Board.
- : Pattern from the side which enables seeing.
- : Pattern on the rear side.
- There are few cases that the part isn't mounted in this model is printed on this diagram.

HG-1 BOARD



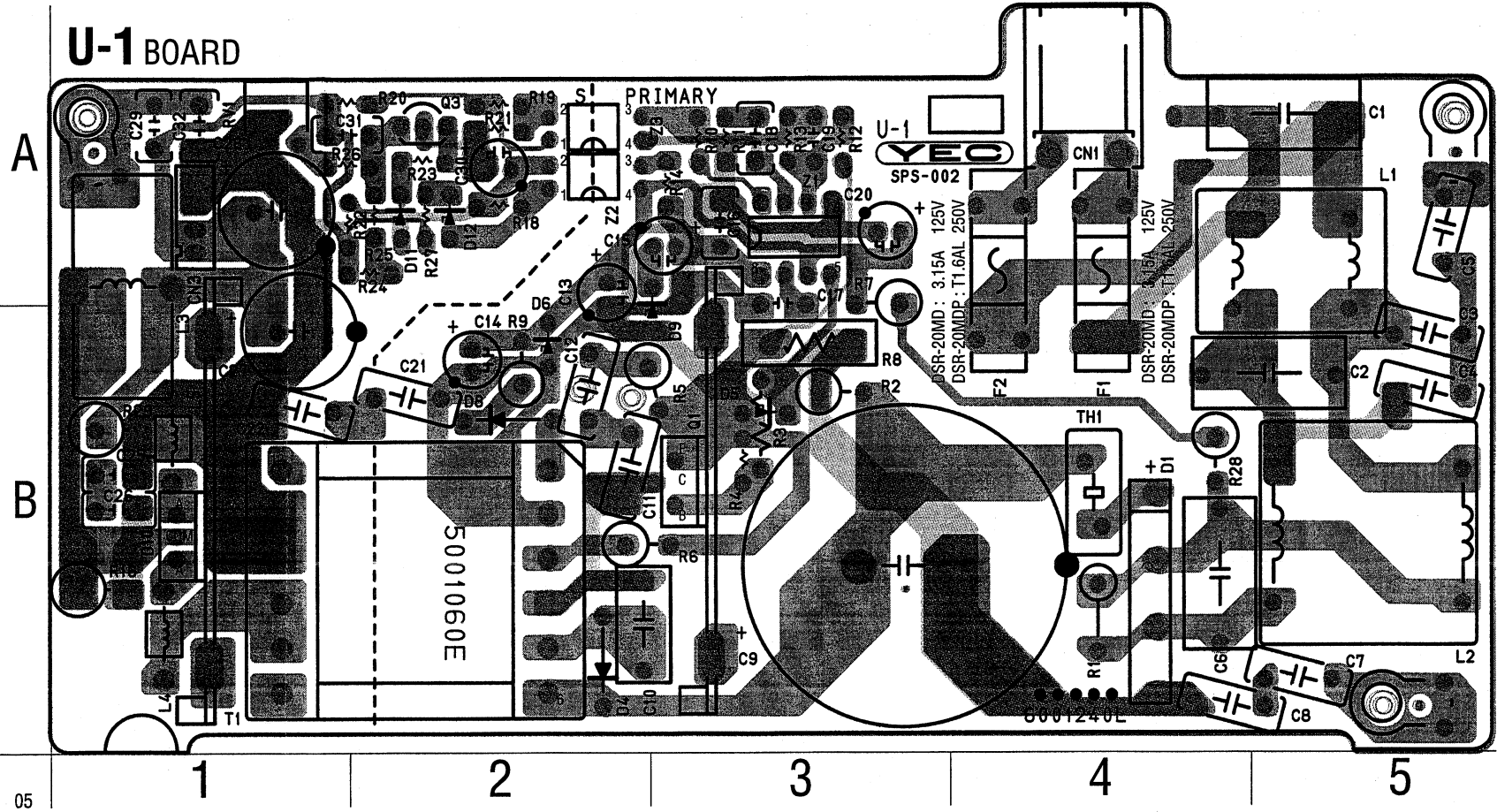
U-1 (POWER 1) PRINTED WIRING BOARD

– Ref. No.: U-1 board; 10,000 series –

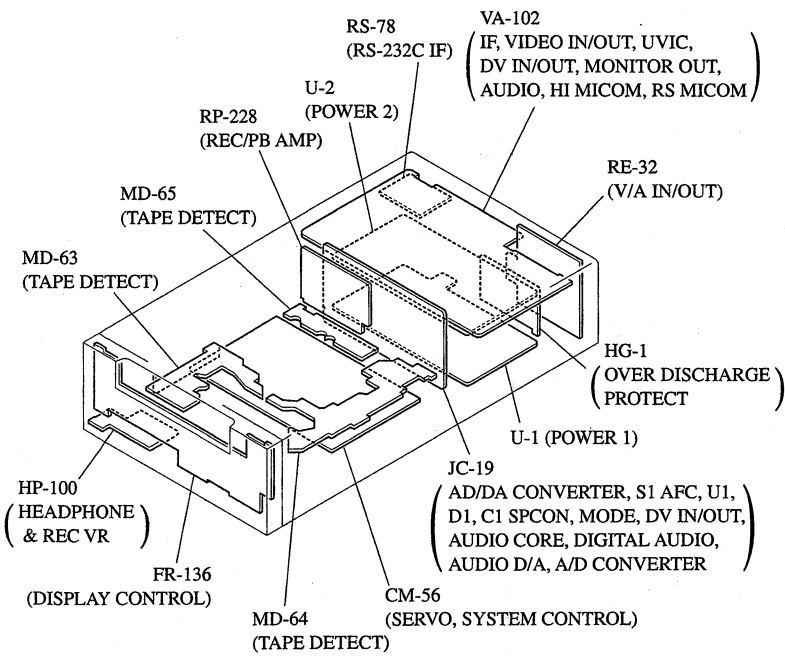
- For Printed Wiring Board.
- : Pattern from the side which enables seeing.
- : Pattern on the rear side.
- There are few cases that the part isn't mounted in this model is printed on this diagram.

U-1 BOARD

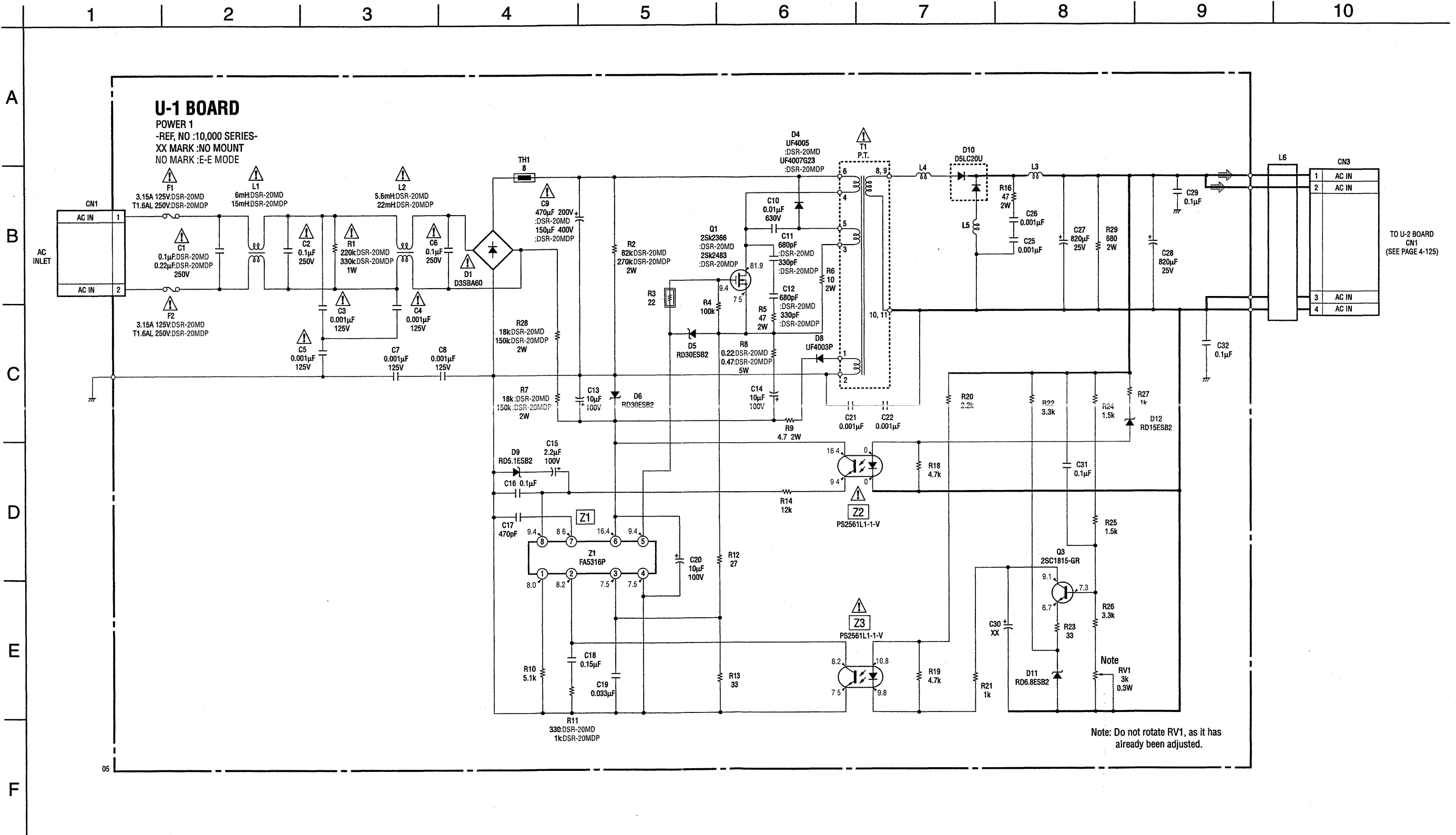
CN1	A-4
CN3	A-1
D1	B-4
D4	B-2
D5	B-3
D6	B-2
D8	B-2
D9	B-3
D10	B-1
D11	A-2
D12	A-2
Q1	B-3
Q3	A-2
Z1	A-3
Z2	A-2
Z3	A-2



DSR-20MD : 1-468-441-  
DSR-20MDP : 1-468-442-



U-1 (POWER 1) SCHEMATIC DIAGRAM



The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

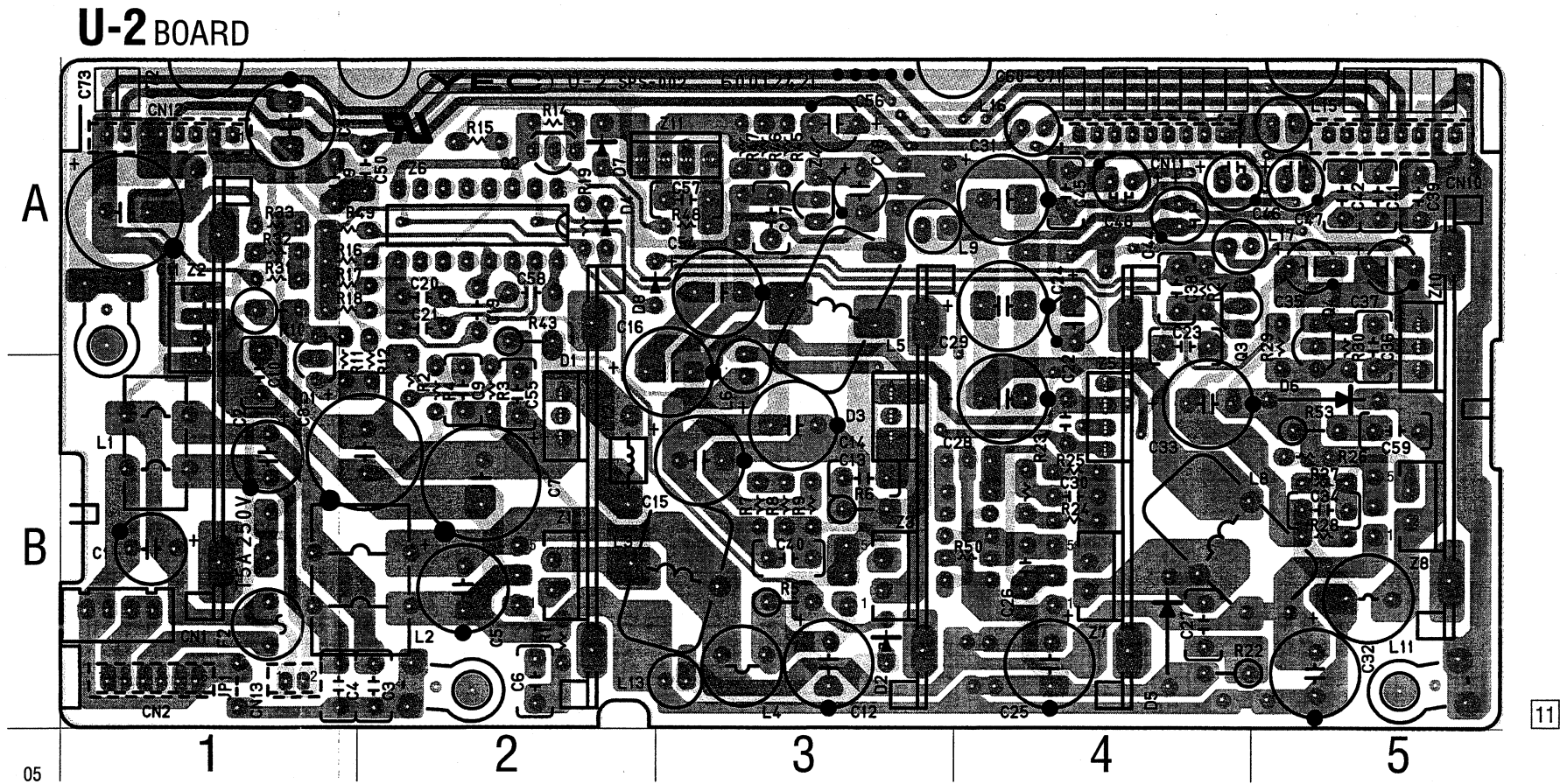
U-2 (POWER 2) PRINTED WIRING BOARD

– Ref. No.: U-2 board; 20,000 series –

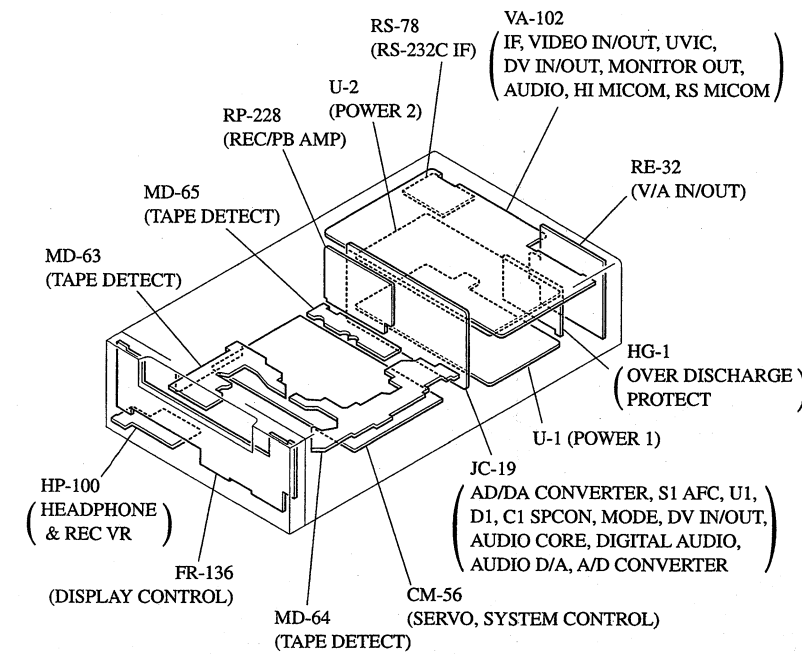
- For Printed Wiring Board.
- : Pattern from the side which enables seeing.
- : Pattern on the rear side.
- There are few cases that the part isn't mounted in this model is printed on this diagram.

U-2 BOARD

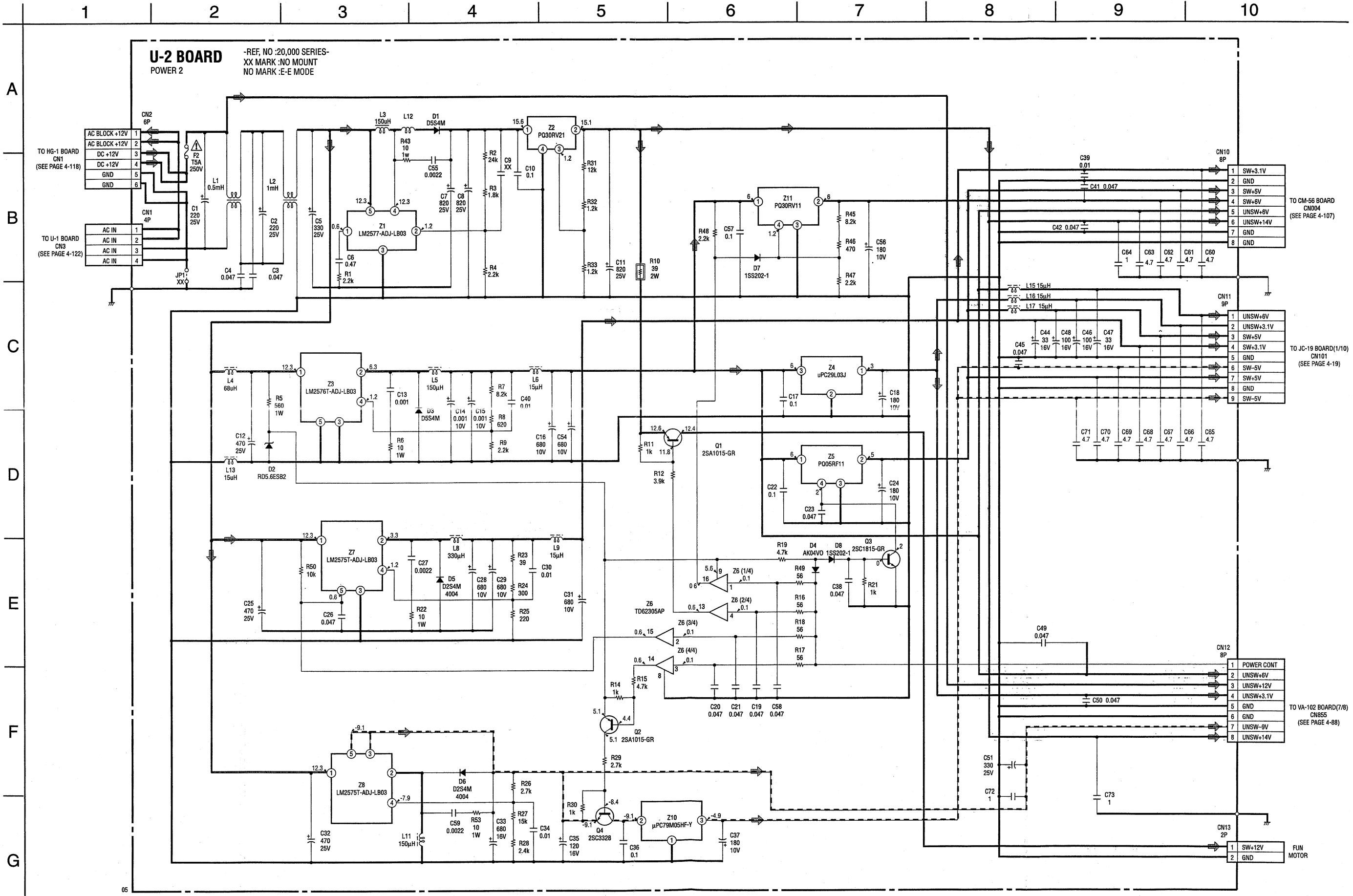
CN1	B-1
CN2	B-1
CN10	A-5
CN11	A-4
CN12	A-1
CN13	B-1
D1	B-2
D2	B-3
D3	B-3
D4	A-2
D5	B-4
D6	B-5
D7	A-2
D8	A-3
Q1	B-1
Q2	A-2
Q3	A-4
Q4	A-5
Z1	B-2
Z2	A-1
Z3	B-3
Z4	A-3
Z5	B-4
Z6	A-2
Z7	B-4
Z8	B-5
Z10	A-5
Z11	A-3



DSR-20MD : 1-468-441-  
DSR-20MDP : 1-468-442-



U-2 (POWER 2) SCHEMATIC DIAGRAM



The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

**POWER 2**  
U-2





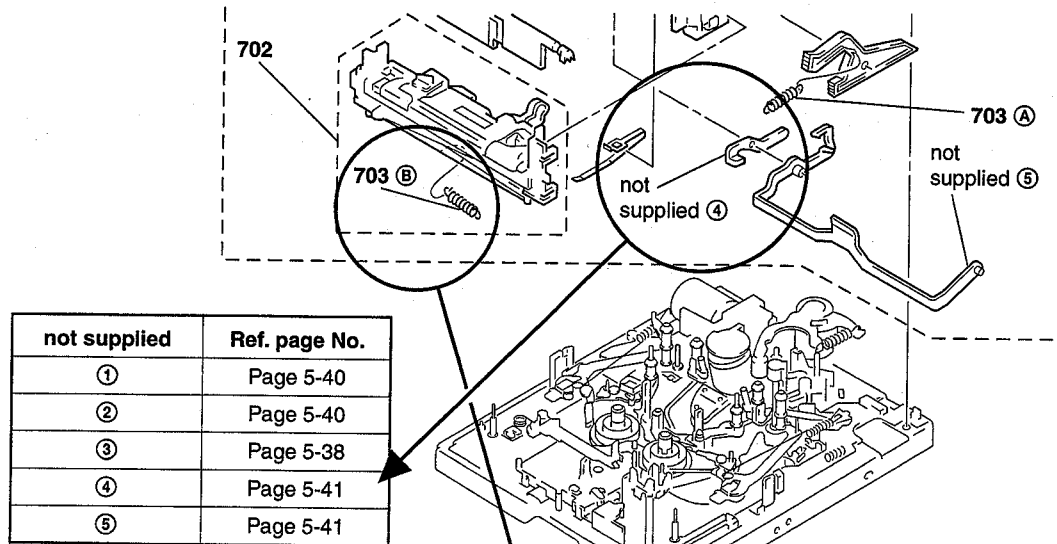
## SECTION 5 ADJUSTMENTS

### 5-1. MECHANICAL SECTION ADJUSTMENTS

#### 5-1-1. INFORMATION

##### 1-1. HOW TO SEARCH REFERENCE PAGES FOR REMOVAL

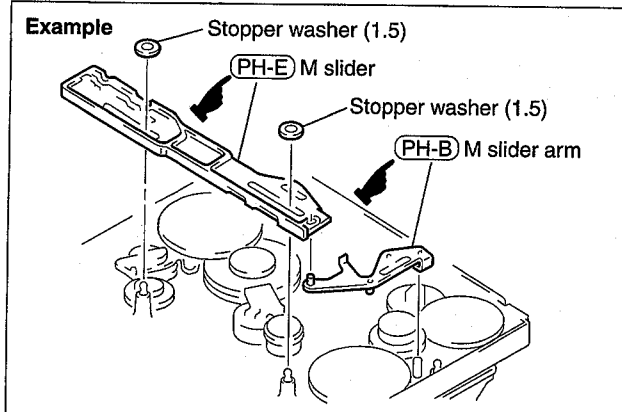
- To facilitate finding the required pages on how to removing and attaching parts, reference pages are listed in the remarks of the exploded views (6-4 to 6-9 pages) in the 5-1. Mechanical Section Adjustment.



Ref. No.	Part No.	Description	Ref. Page No.	Ref. No.
* 701	A-7092-644-A	FL BLOCK ASSY	(5-2)	708
702	A-7092-647-A	SLOAT BLOCK ASSY, C	(5-41)	709
703	3-967-604-01	SPRING (DB), TENSION	(A:5-40/B:5-41)	710
704	3-967-655-01	DOOR, C	(5-40)	
705	3-967-613-01	SPRING (HS), TENSION COIL	(5-41)	711
				712

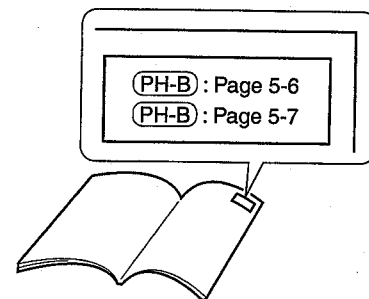
##### 1-2. PHASE ADJUSTMENT MARK “(PH-)”

Numerous phase adjustments must be performed for removing and attaching parts (replacing parts) of the E mechanism. When removing and attaching parts, be sure to check the phase adjustment of corresponding parts. Parts that need phase adjustment are indicated with (PH-) mark. When replacing parts indicated with (PH-) mark, check their positions and phases so that the parts are attached smoothly in later.



In case of the above figure, refer to ② and ③ of “5-1-3. PHASE ADJUSTMENTS”

##### Example



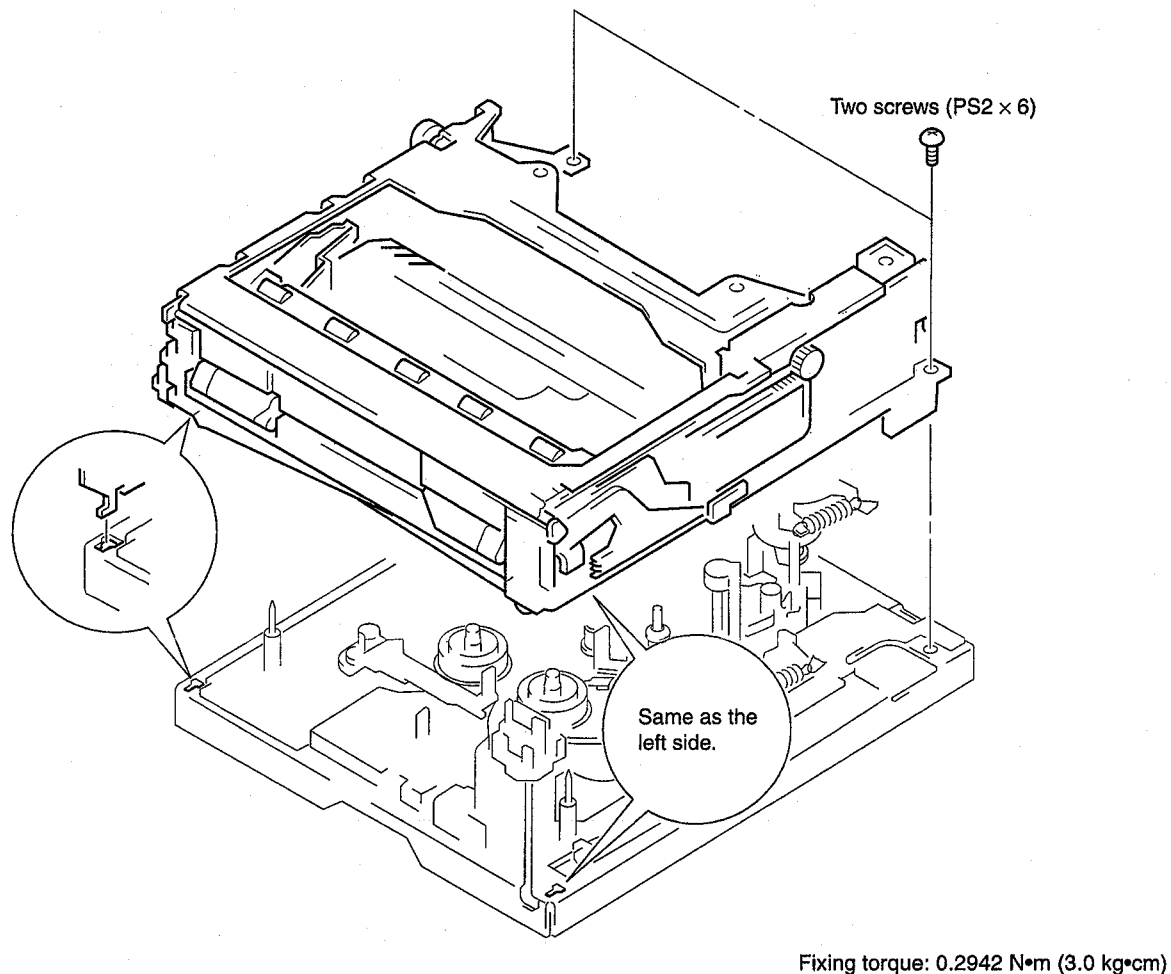
The reference pages of phase adjustment are appeared on the top of the right in each page.

## 5-1-2. PREPARATION FOR MECHANICAL CHECK, ADJUSTMENT AND MAINTENANCE

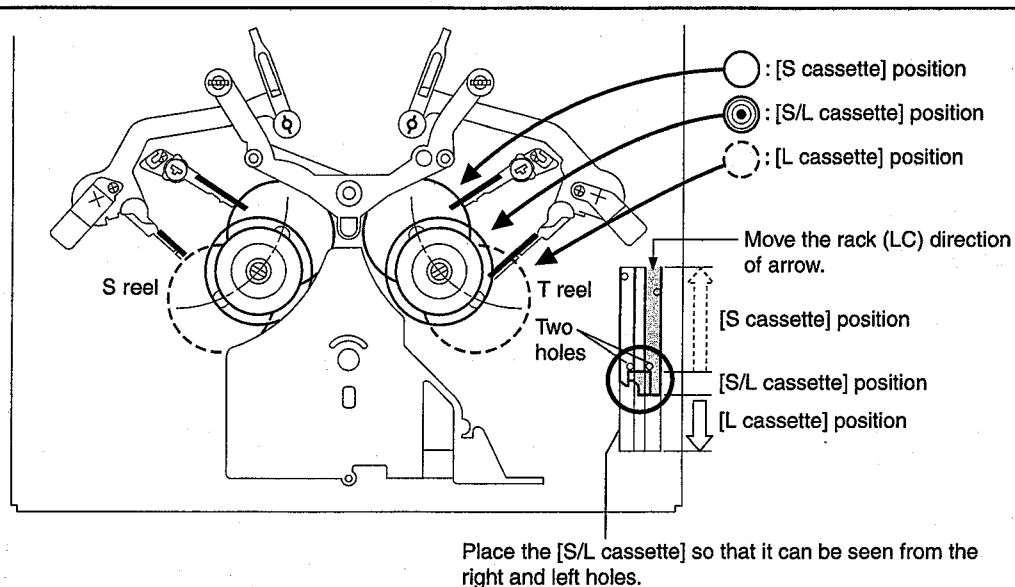
### 2-1. FL BLOCK ASSEMBLY

#### • Removing/Attaching

- For removal of mechanism deck, refer to 2-5. Removal of MD BLOCK ASSEMBLY.



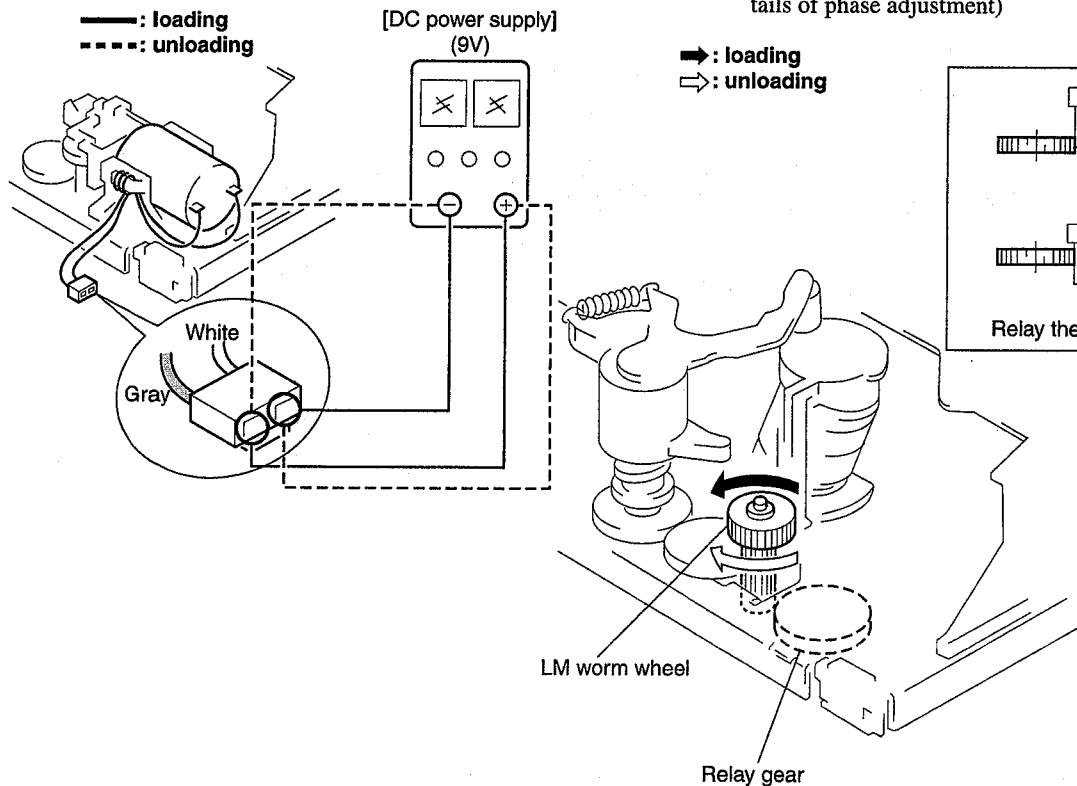
### 2-2. CASSETTE POSITIONS



## 2-3. LOADING/UNLOADING

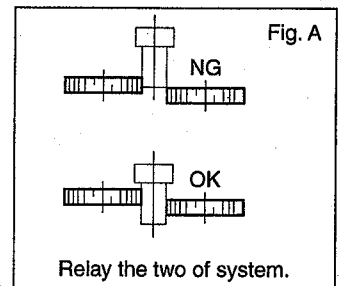
### [Using the DC power supply] : With a loading motor

**Note:** Be sure to disconnect the connector of the loading motor before servicing.



### [Manual] : Without a loading motor

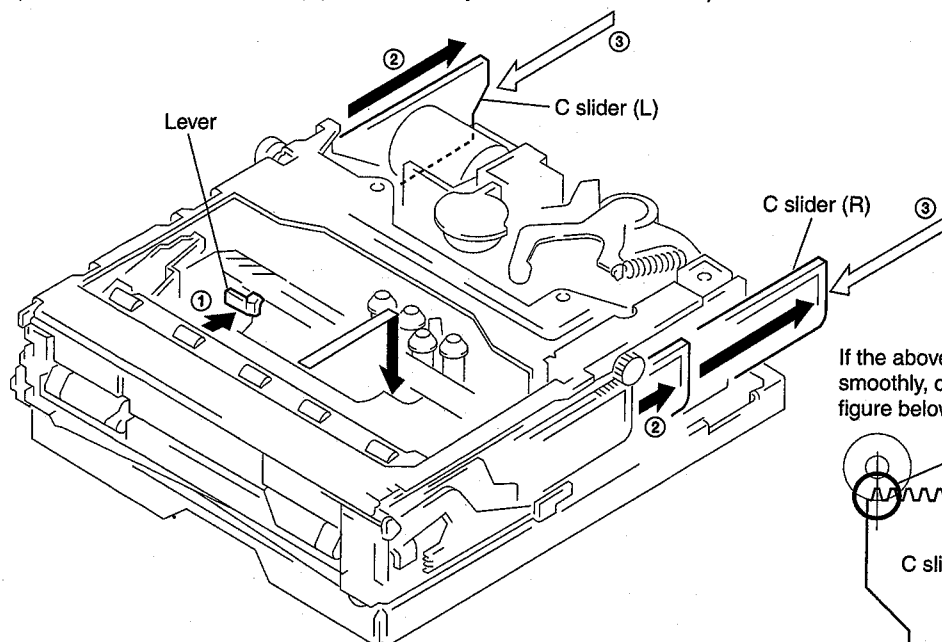
**Note:** If the LM worm wheel is rotated in the state shown in figure A (not engaged with the relay gear), the phases of the pinch drive system and the loading drive system will shift. (Refer to phase adjustment ④ on page 5-7 for details of phase adjustment)



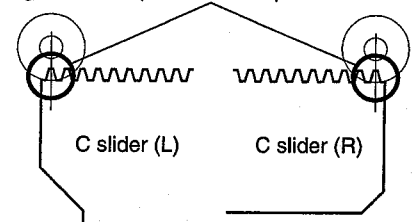
## 2-4. MANUAL UP/DOWN THE FL BLOCK

➡ **DOWN.** (While pushing the lever in the arrow ① direction, push C slider (L) and (R) simultaneously in the arrow ③ direction)

⇨ **UP.** (Push C slider (L) and (R) simultaneously in the arrow ③ direction)



If the above operation cannot be performed smoothly, check the phase as shown in the figure below. (Cassette compartment is UP)



## 2-5. SERVICE JIGS LIST

Ref. No.	Name	Part No.	Fixtur No.	Usage, Others Application, etc
J-1	Cleaning fluid	Y-2031-001-0		For cleaning drum assembly and tape guide
J-2	Wiping cloth	7-741-900-53		For cleaning drum assembly
J-3	Super fine applicator (Made by NIPPON APPLICATOR (P752D))			For cleaning tape guide
J-4	Mirror (Small oval type)	J-6080-840-A	GD-2038	Tape path
J-5	Tracking tape (XH2-1AST) Standard cassette	8-967-999-01		Tape path (for tape top checking)
	Tracking tape (XH2-1ASE) Standard cassette	8-967-999-06		Tape path (for tape end checking)
	Tracking tape (XH2-1A1) Mini cassette	8-967-999-03		Tape path (for checking)
J-6	Mini DV torque cassette	J-6082-360-A		For adjusting FWD/RVS back tension
J-7	Cassette standard plate (D/E mechanism)	J-6082-330-A		For adjusting tape guide and reel table
J-8	Reel standard plate (D/E mechanism)	J-6082-331-A		For adjusting reel table
J-9	TG2/7 preset plate	J-6082-358-A		For adjusting tape guide
J-10	Screwdriver for tape path	J-6082-026-A		For adjusting tape guide
J-11	Adjusting remote commander (RM-95 remodeled partly) Note 1	J-6082-053-B		Tape path
J-12	Torque driver	J-9049-330-A		Mechanism check and replacement
J-13	Tension regulator adjustment board	J-6082-359-A		Electric tension regulator adjustment
J-14	CPC 8-jig	J-6082-388-A		Tape path

Other equipment used

- Oscilloscope
- DC power supply
- Digital voltage meter



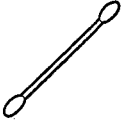
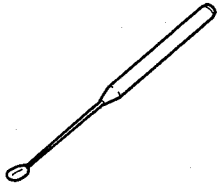
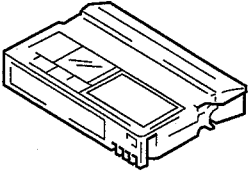
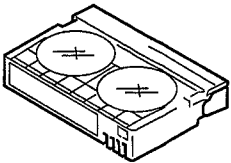
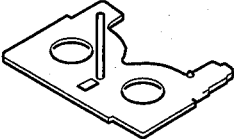

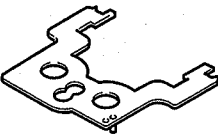
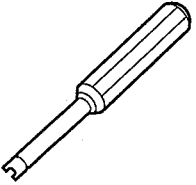


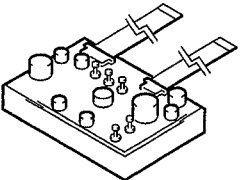
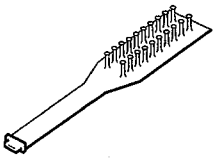
**Note 1:** If the micro processor IC in the adjusting remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched.

In this case, replace with the new micro processor (8-759-148-35).

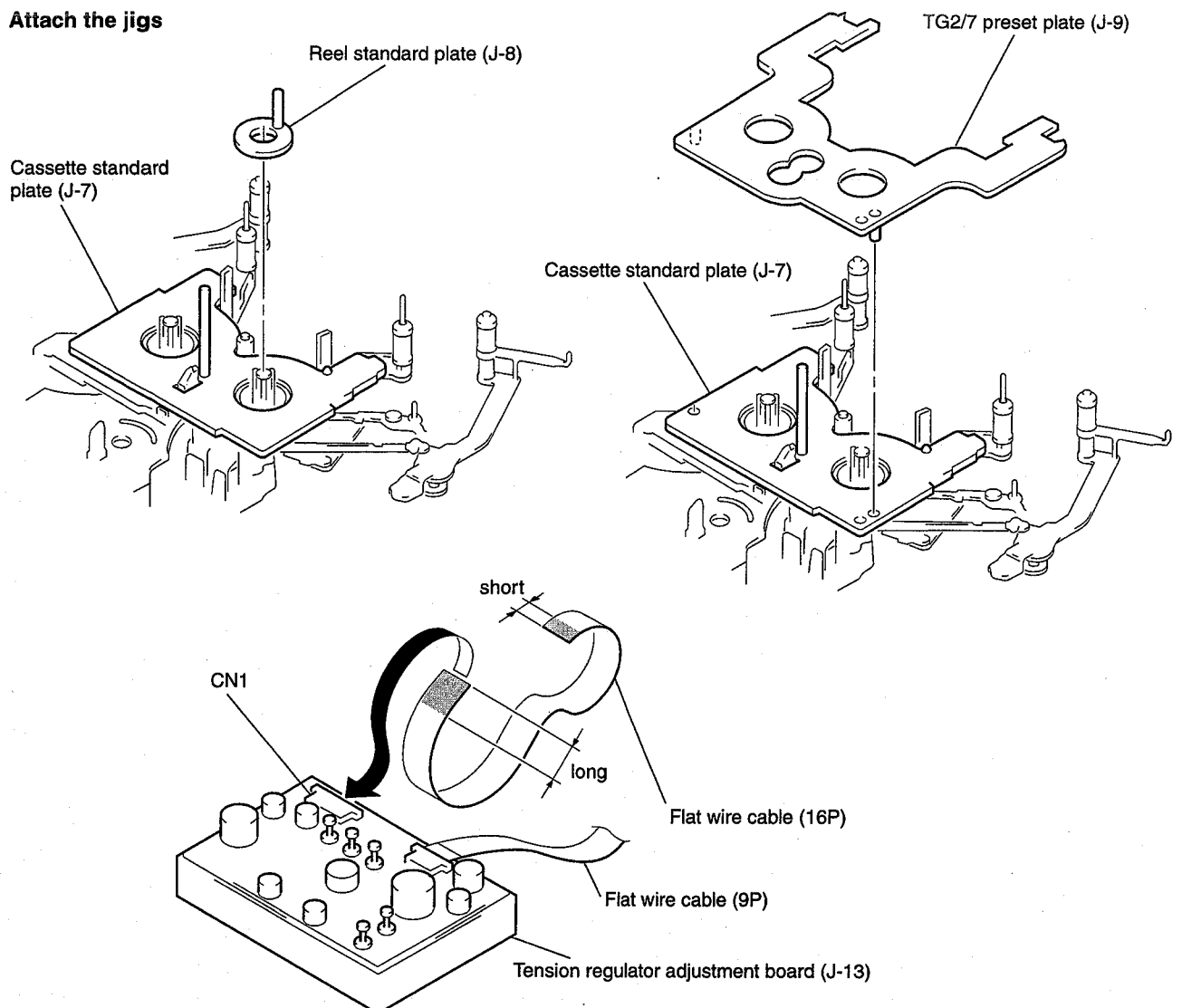
Tape path:

1. Make a checking and adjustment at the tape top using the XH1-1AST tape.
2. Then, make a checking with the XH2-1ASE (for tape end) and XH2-1A1 (Mini cassette for tape top and end).
3. Again make a checking with the XH2-1AST.



J-1 	J-2 	J-3 	J-4 	J-5 
J-6 	J-7 	J-8 	J-9 	J-10 
J-11 	J-12 	J-13 	J-14 	

• Attach the jigs



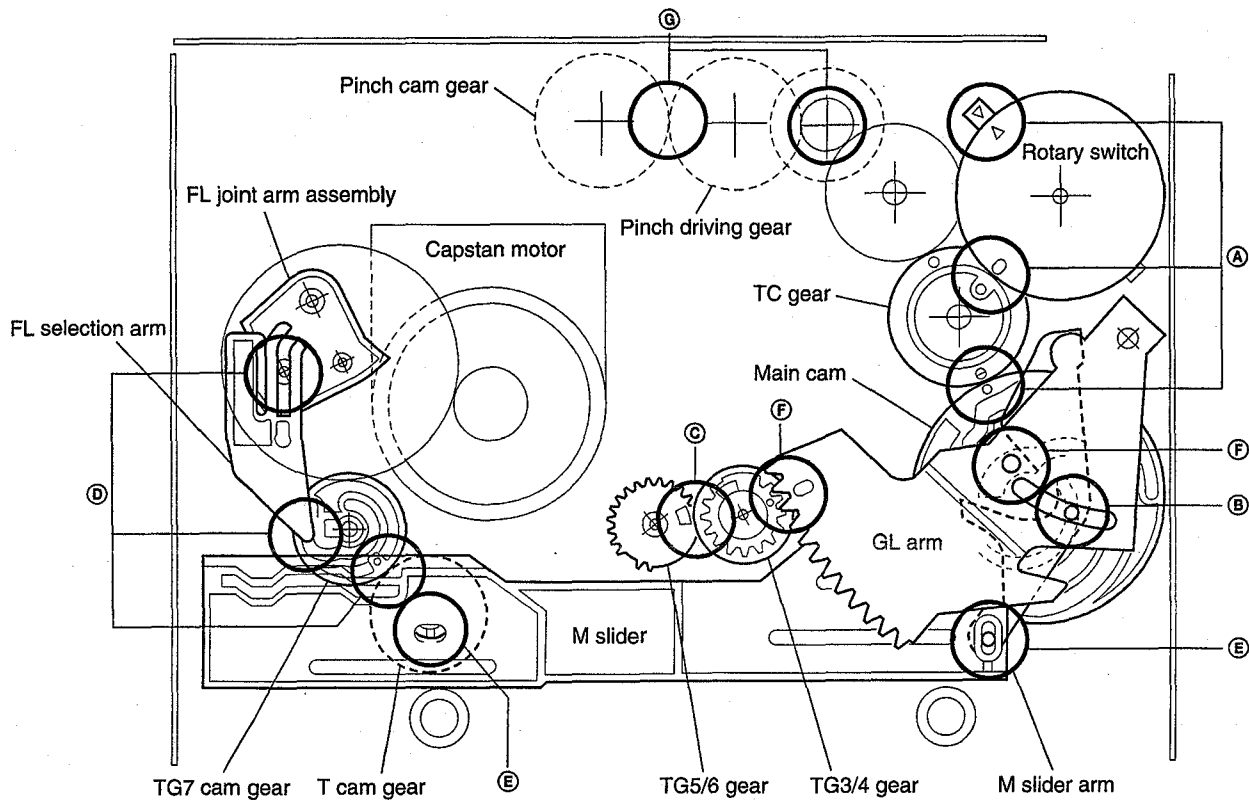
### 5-1-3. PHASE ADJUSTMENTS

- This section classifies the phase adjustment into three blocks for clarity. The attaching order of each part is not described here. For details of the attaching order, refer to "5-1-5. MECHANISM SECTION CHECKS AND REPLACEMENTS".

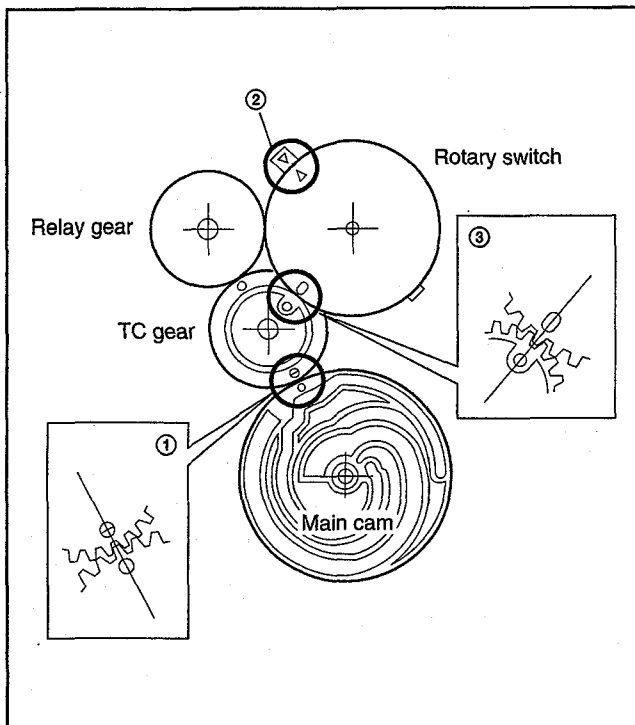
#### 3-1. PHASE ADJUSTMENT (Loading/Unloading Driving Section)

**Note 1:** Adjust it at the **UNLOADING** position unless otherwise specified.

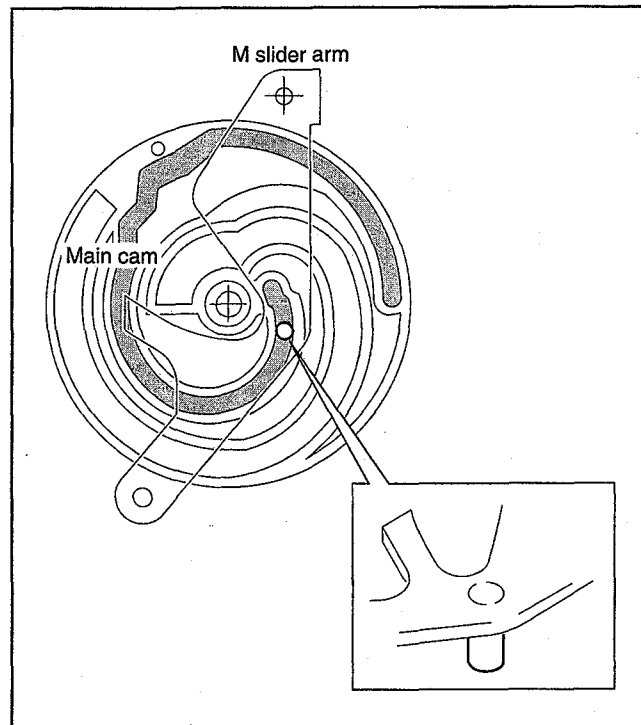
**Note 2:** ① to ⑥ shown below are the orders for the phase adjustment.



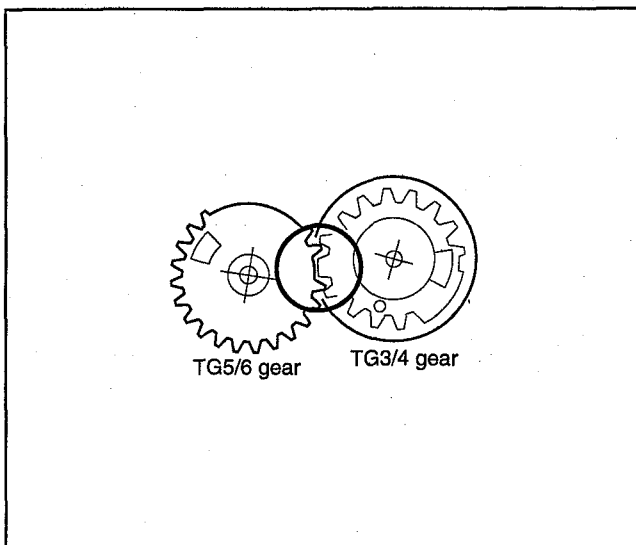
#### PHASE ADJUSTMENT ①



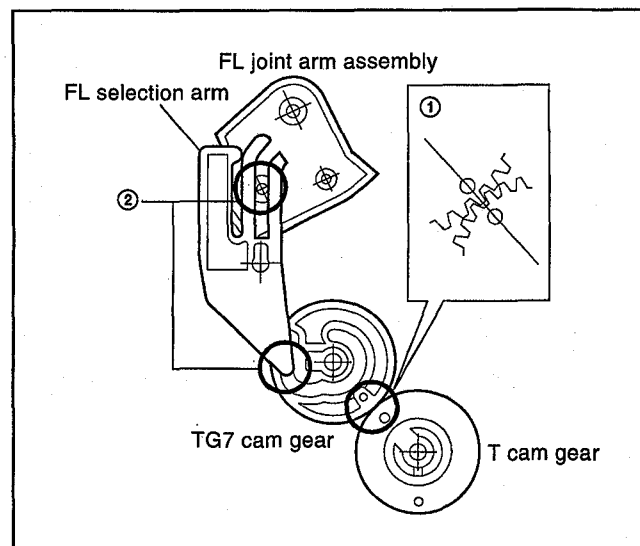
#### PHASE ADJUSTMENT ②



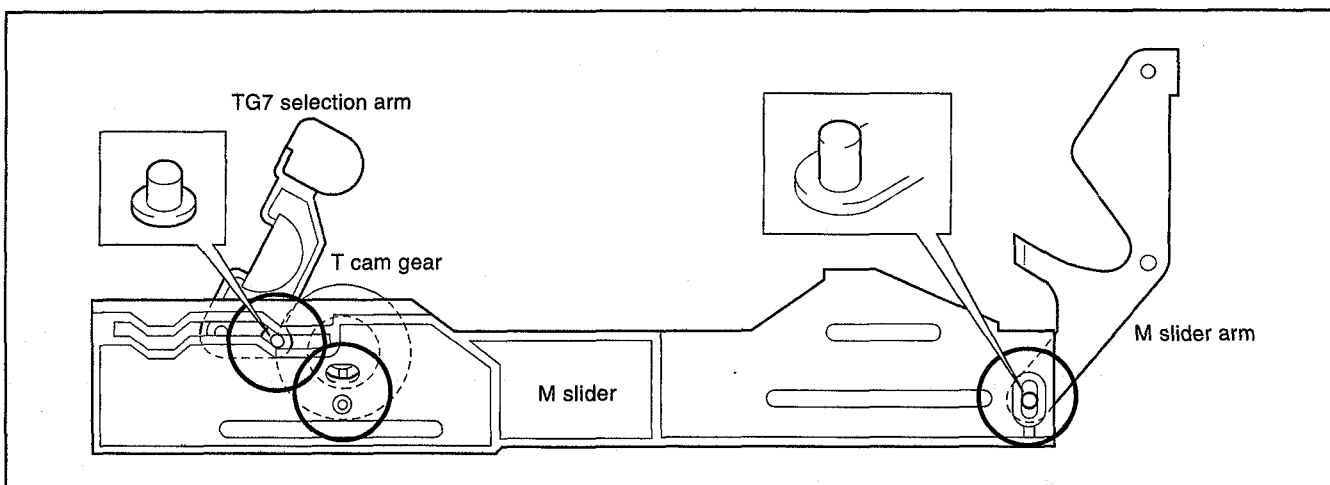
### PHASE ADJUSTMENT ㉔



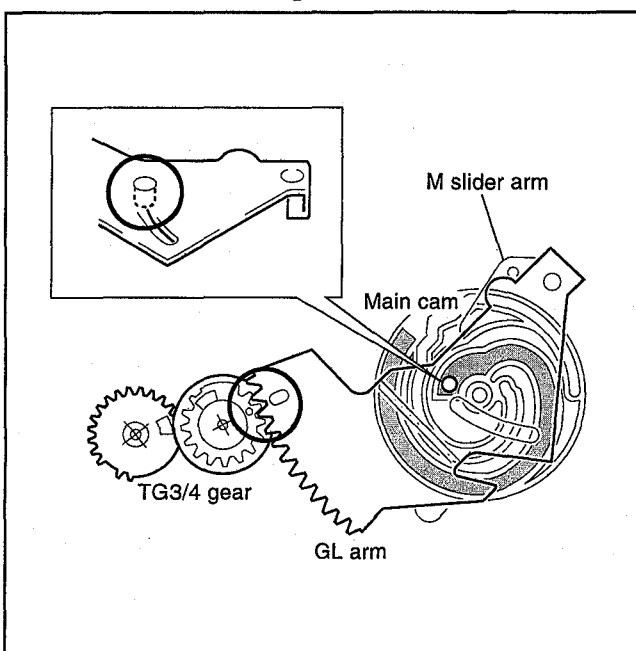
### PHASE ADJUSTMENT ㉕



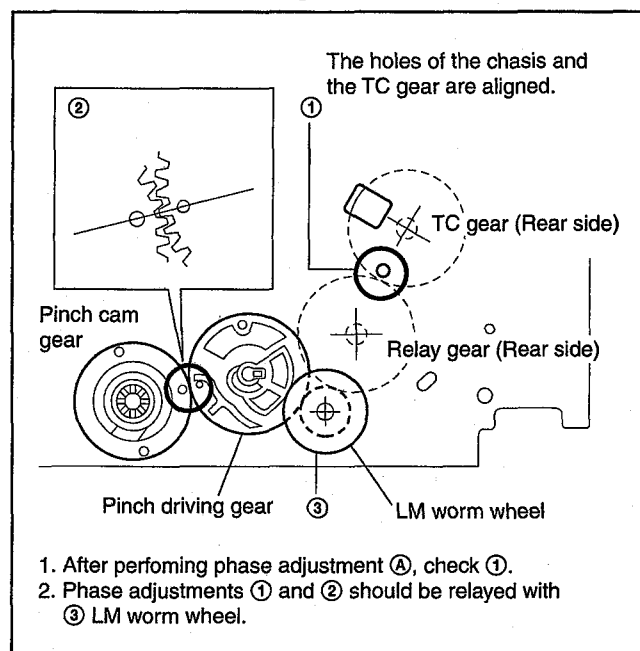
### PHASE ADJUSTMENT ㉖



### PHASE ADJUSTMENT ㉗



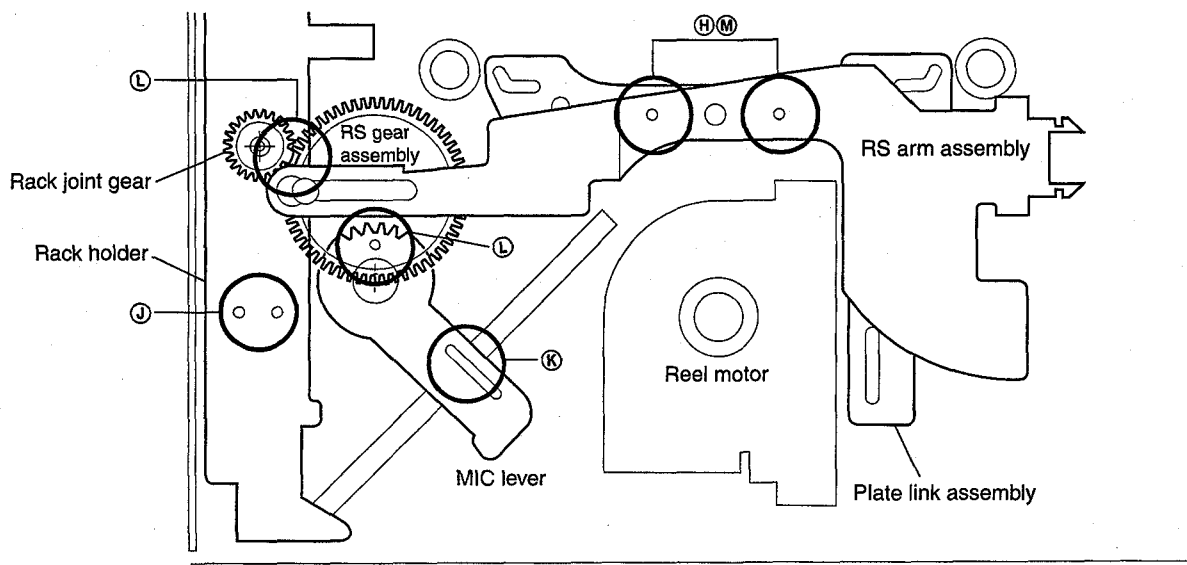
### PHASE ADJUSTMENT ㉘



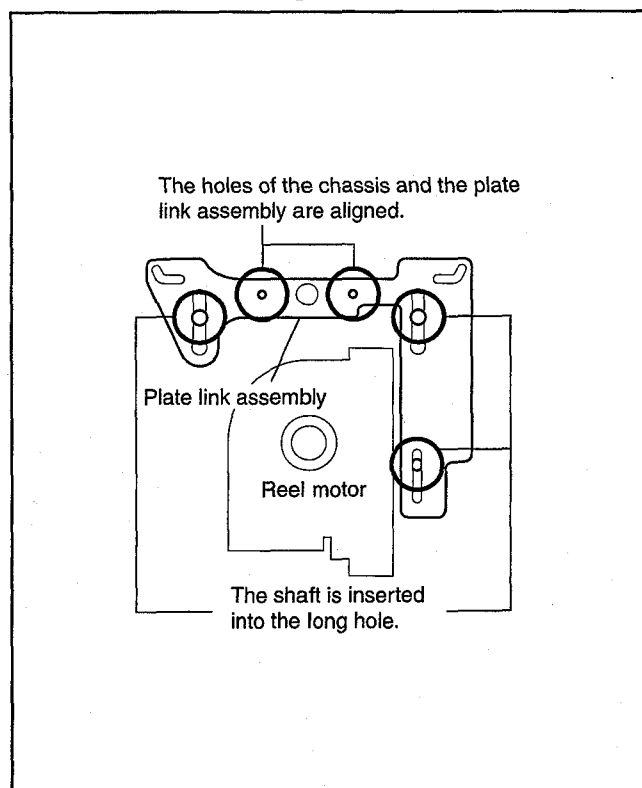
### 3-2. PHASE ADJUSTMENT (S/L Cassette Selection Section)

**Note 1:** Adjust if at the **(S/L cassette)** position unless otherwise specified.

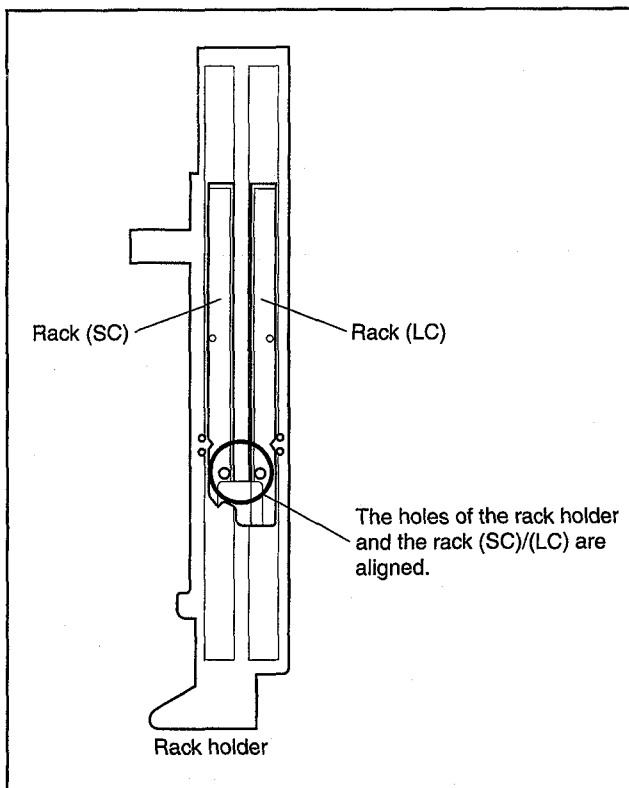
**Note 2:** ⑧ to ⑭ shown below are the orders for the phase adjustment.



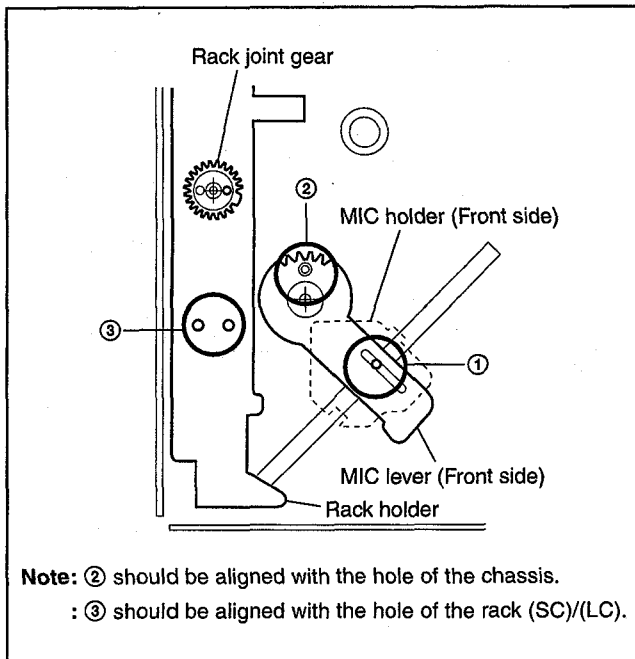
#### PHASE ADJUSTMENT ⑧



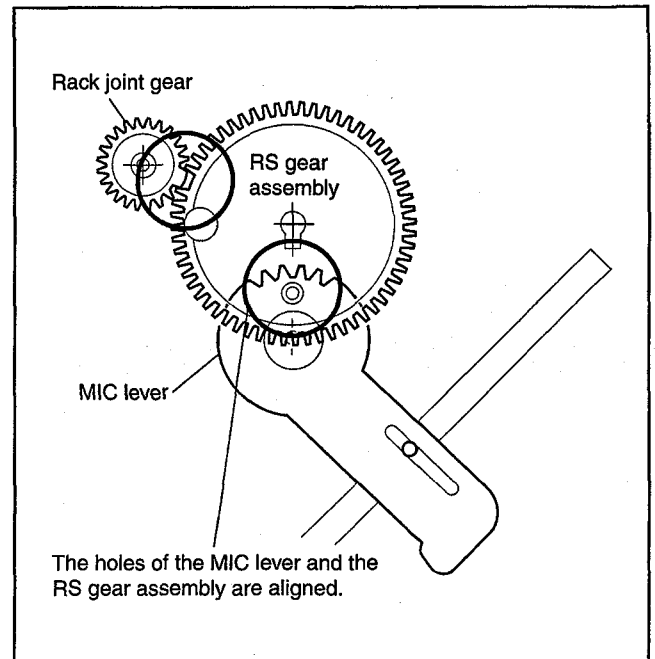
#### PHASE ADJUSTMENT ⑪



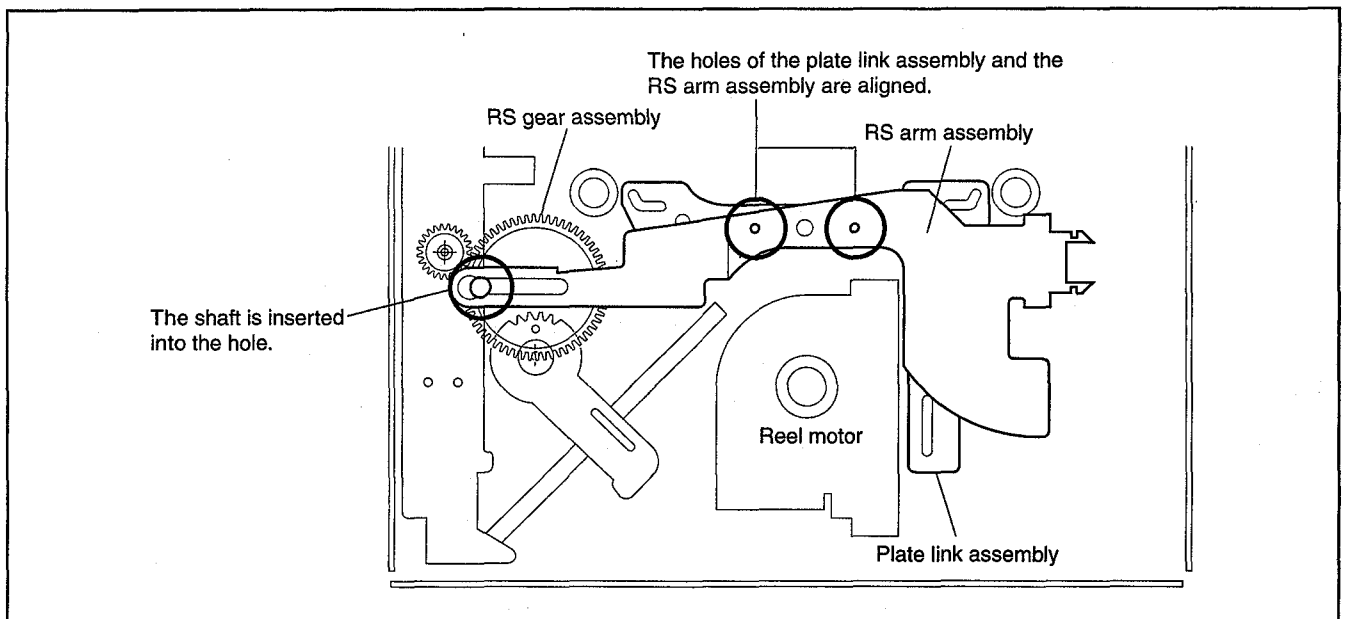
### PHASE ADJUSTMENT ㊦



### PHASE ADJUSTMENT ㊧



### PHASE ADJUSTMENT ㊨

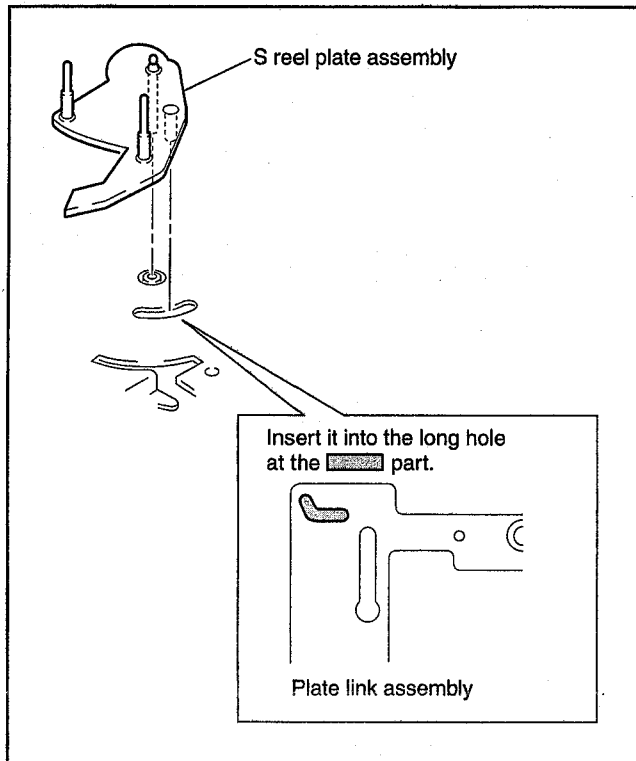




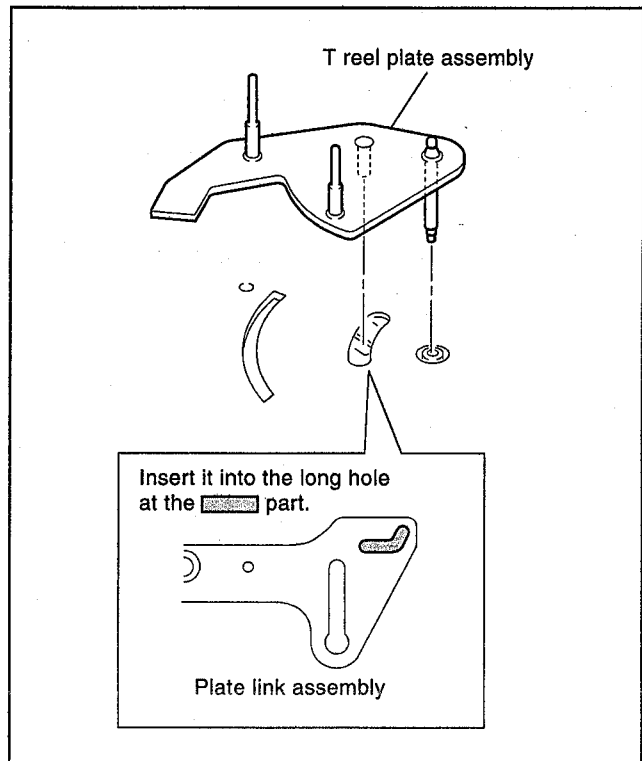
### 3-3. PHASE ADJUSTMENT (Mechanism Chassis Upper Surface Parts)

**Note:** Adjust if at the **UNLOADING** position unless otherwise specified.

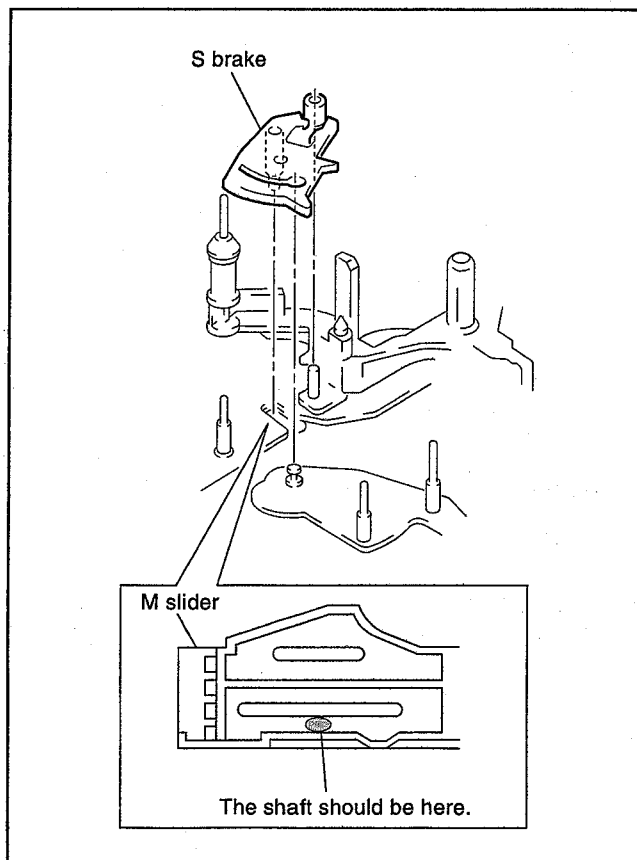
#### PHASE ADJUSTMENT ㊦



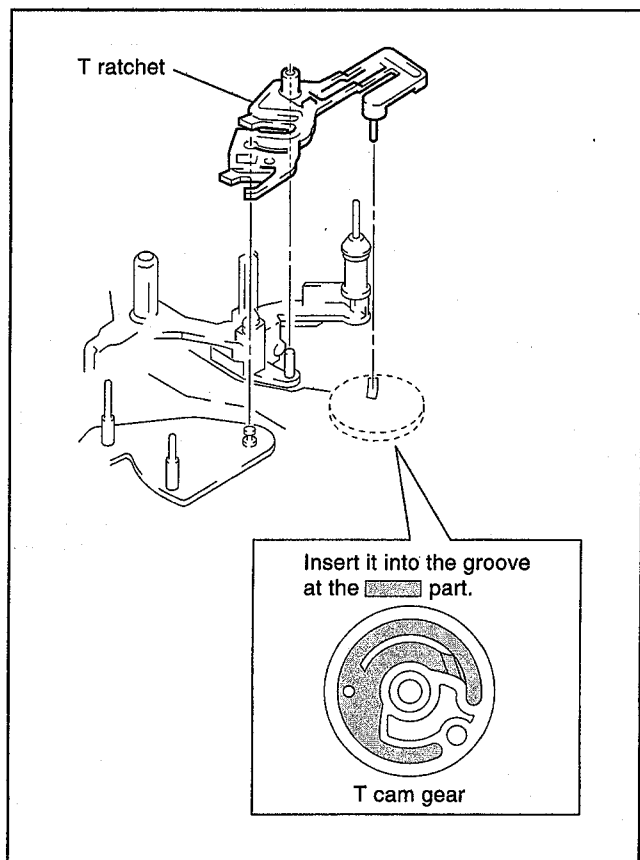
#### PHASE ADJUSTMENT ㊧



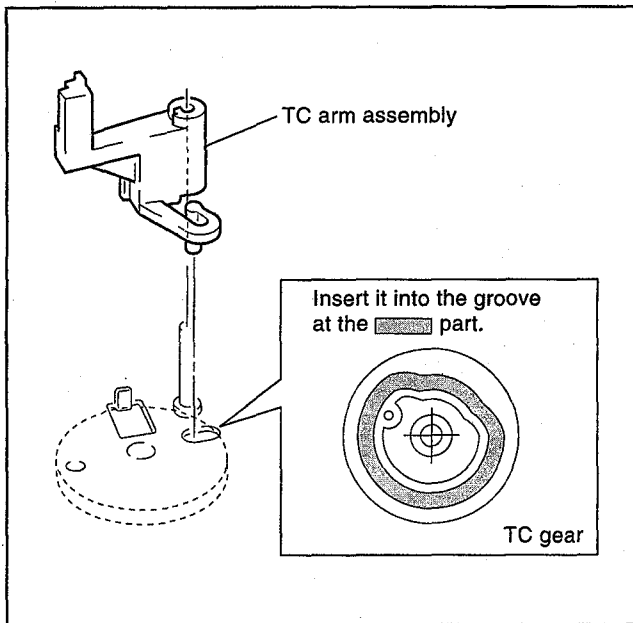
#### PHASE ADJUSTMENT ㊨



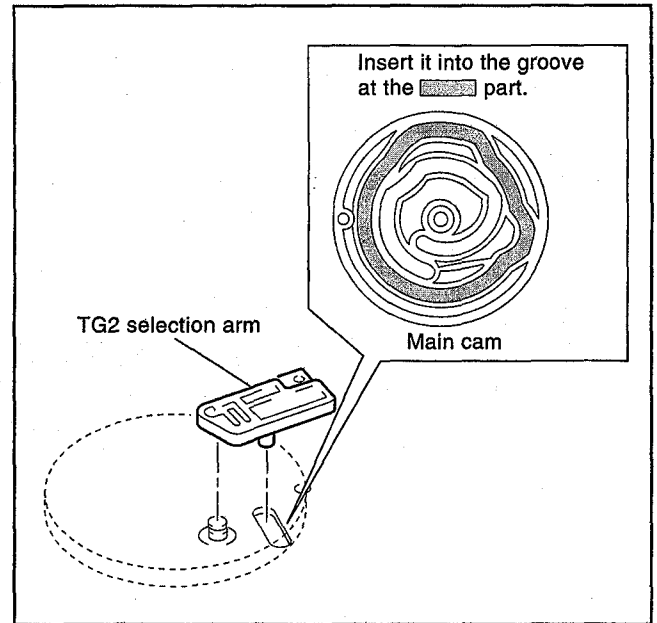
#### PHASE ADJUSTMENT ㊩



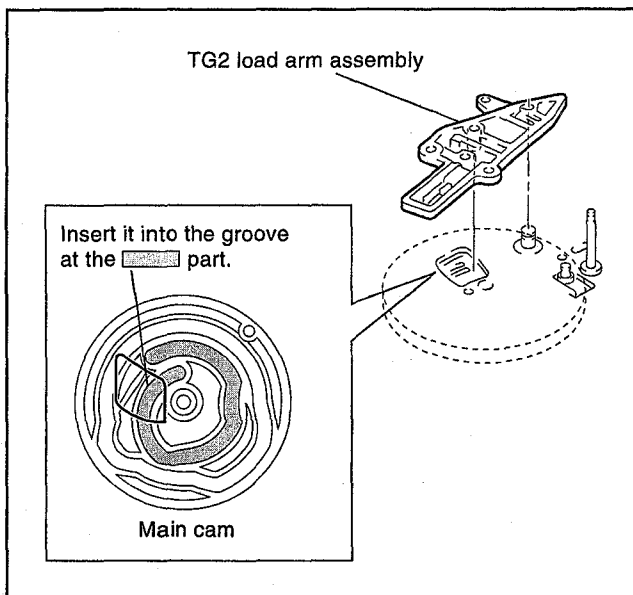
### PHASE ADJUSTMENT ㉓



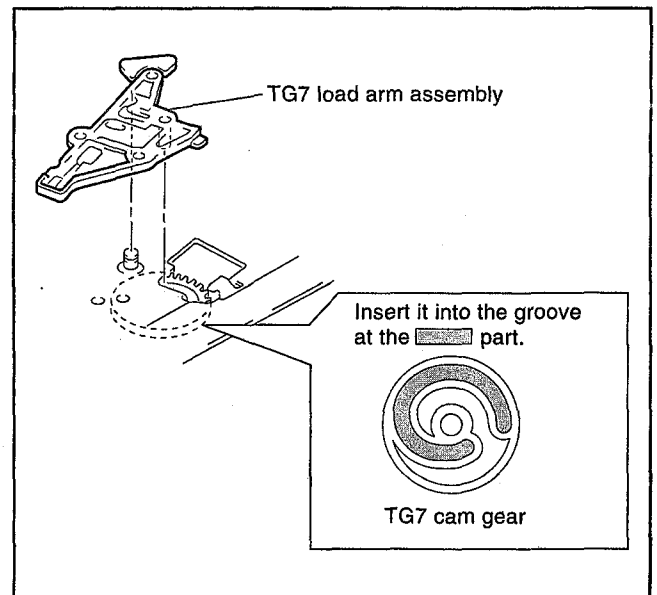
### PHASE ADJUSTMENT ㉔



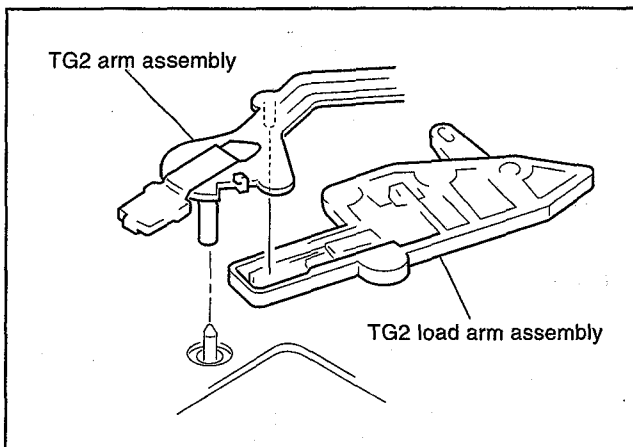
### PHASE ADJUSTMENT ㉕



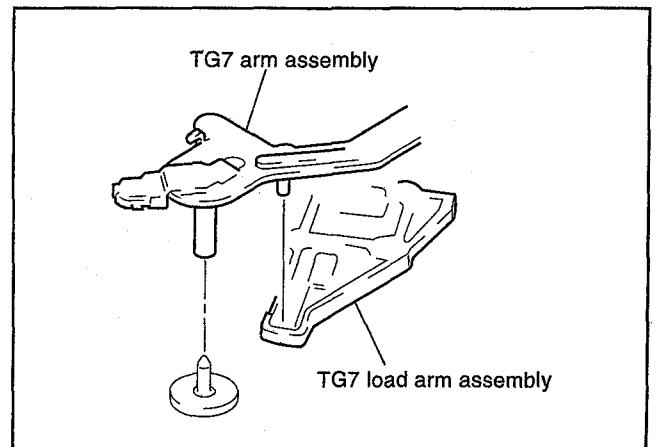
### PHASE ADJUSTMENT ㉖



### PHASE ADJUSTMENT ㉗



### PHASE ADJUSTMENT ㉘



#### 5-1-4. PERIODIC CHECK AND MAINTENANCE

- Carry out the following maintenance and periodic checks not only to fully display the functions and performance of the set, but also for the equipment and tape. After repairing, service the set as follows, regardless of the length of use.

##### 4-1. CLEANING OF ROTARY DRUM ASSEMBLY

- 1) Press a wiping cloth (Ref No. J-2) moistened with cleaning fluid (Ref No. J-1) against the rotary drum assembly gently, and clean it while rotating the upper rotary drum assembly slowly with your finger in the counterclockwise direction.

**Note:** Do not rotate the motor on power or rotate the upper rotary drum assembly in the clockwise direction with your finger. The head tip will also be damaged if the wiping cloth is moved perpendicularly against it. Therefore, be sure to follow the above instructions when cleaning the rotary drum assembly.

##### 4-2. CLEANING OF TAPE PATH SYSTEM (See Fig. 1.)

- 1) In the EJECT mode, clean the tape path systems (TG-1, 2, 3, 4, 5, 6, 7, 8, capstan) and the lower drum using a superfine applicator (Ref No. J-3) moistened with cleaning fluid.

**Note 1:** Make sure that no oil or grease of the link mechanisms sticks to the superfine applicator. (Ref No. J-3)

**Note 2:** Do not use an applicator moistened with alcohol to the other guide cleaning. But clean the pinch roller using alcohol.

**Note:** When cleaning the tape path system, be sure to set it to the **LOADING** position. (Refer to page 5-3)

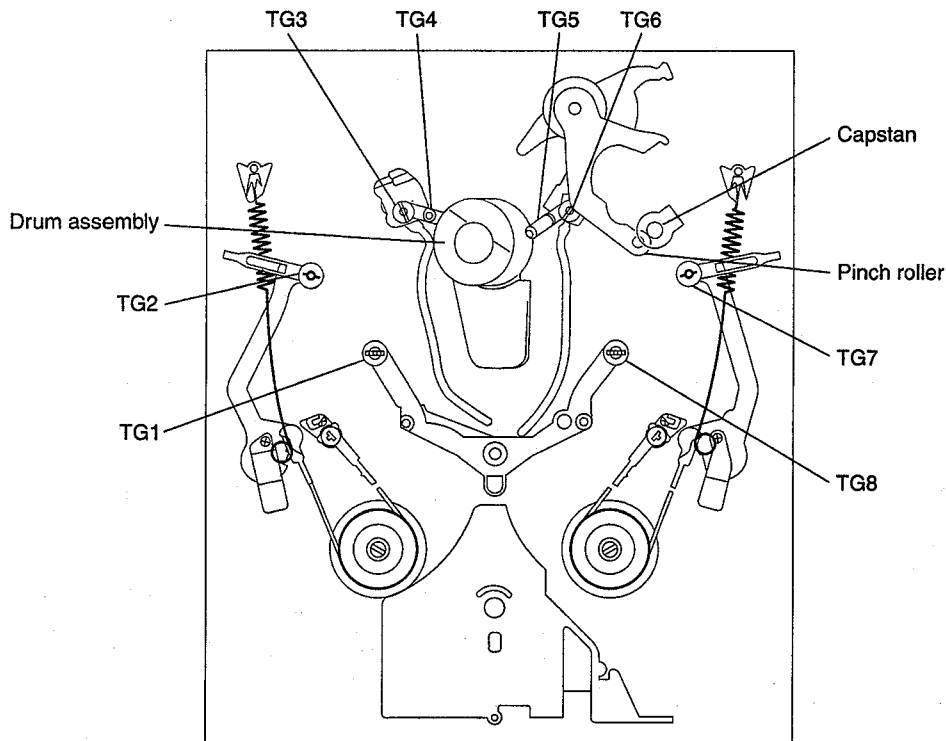


Fig. 1.

#### 4-3. PERIODIC CHECKS

Location of Maintenance and Check		Hours of Use (H)										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Cleaning of tape path surface	○	○	○	○	○	○	○	○	○	○	Take care not to adhere the oil.
	Cleaning and degaussing of rotary drum assembly	○	○	○	○	○	○	○	○	○	○	
Driving System	Capstan shaft (Bearing)	-	☆	-	☆	-	☆	-	☆	-	☆	Make sure that no oil gets on the tape path surface.
	Loading motor	-	☆	-	☆	-	☆	-	☆	-	☆	A-7026-007-A
Performance Confirmation	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	-	☆	-	☆	-	☆	-	☆	-	☆	
	Brake system	-	☆	-	☆	-	☆	-	☆	-	☆	
	FWD } Torque measurement RVS }	-	☆	-	☆	-	☆	-	☆	-	☆	

○: Cleaning ☆: Confirmation

**Note:** When overhauling, refer to the checks above and replace parts.

**Note:** Grease

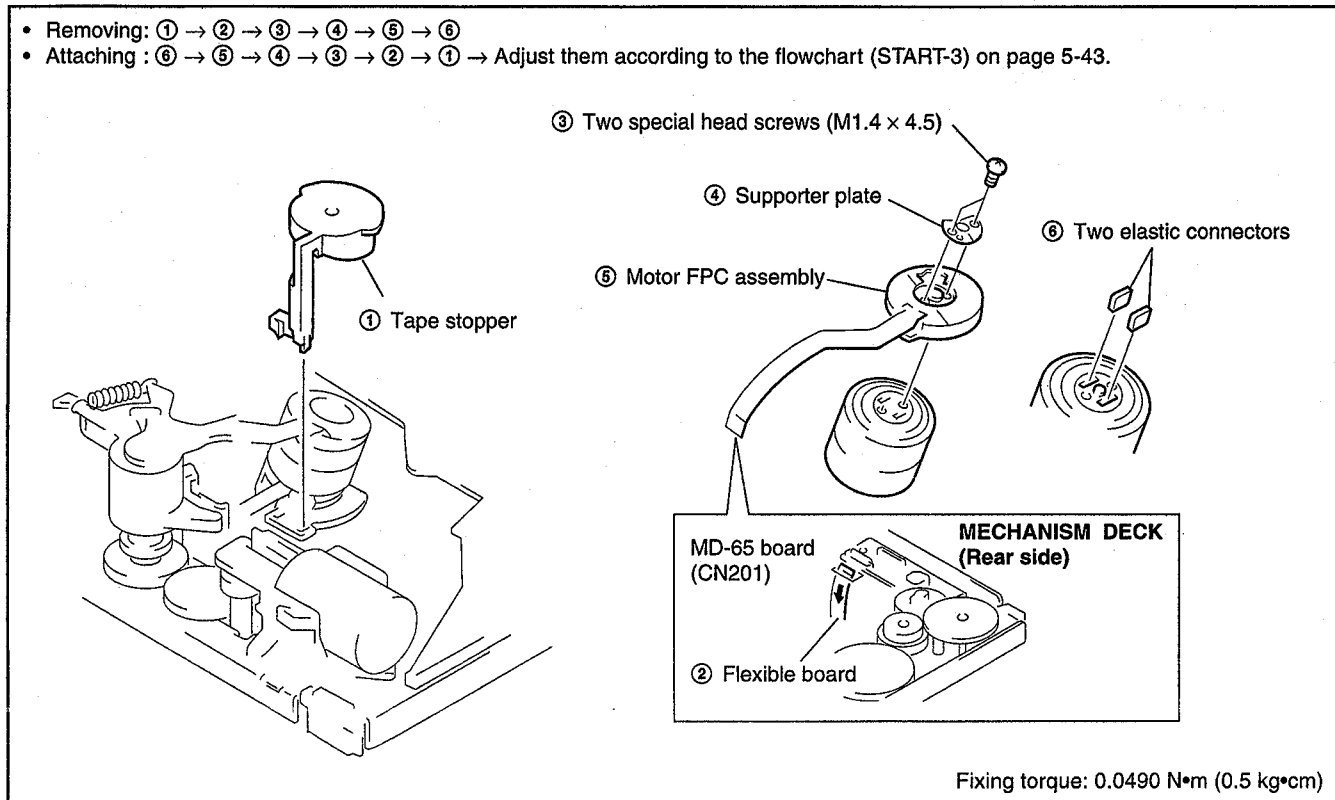
- Be sure to use the specified the grease. (The SG-055G is used all in the E mechanism)  
Check the quantity of grease when installing the parts which is needed to apply the grease.
- FLOIL (SG-055G): Part No. 7-651-000-09

## 5-1-5. MECHANISM SECTION CHECKS AND REPLACEMENTS

### 5-1. TAPE STOPPER, MOTOR FPC ASSEMBLY AND ELASTIC CONNECTOR

#### • Removing/Attaching

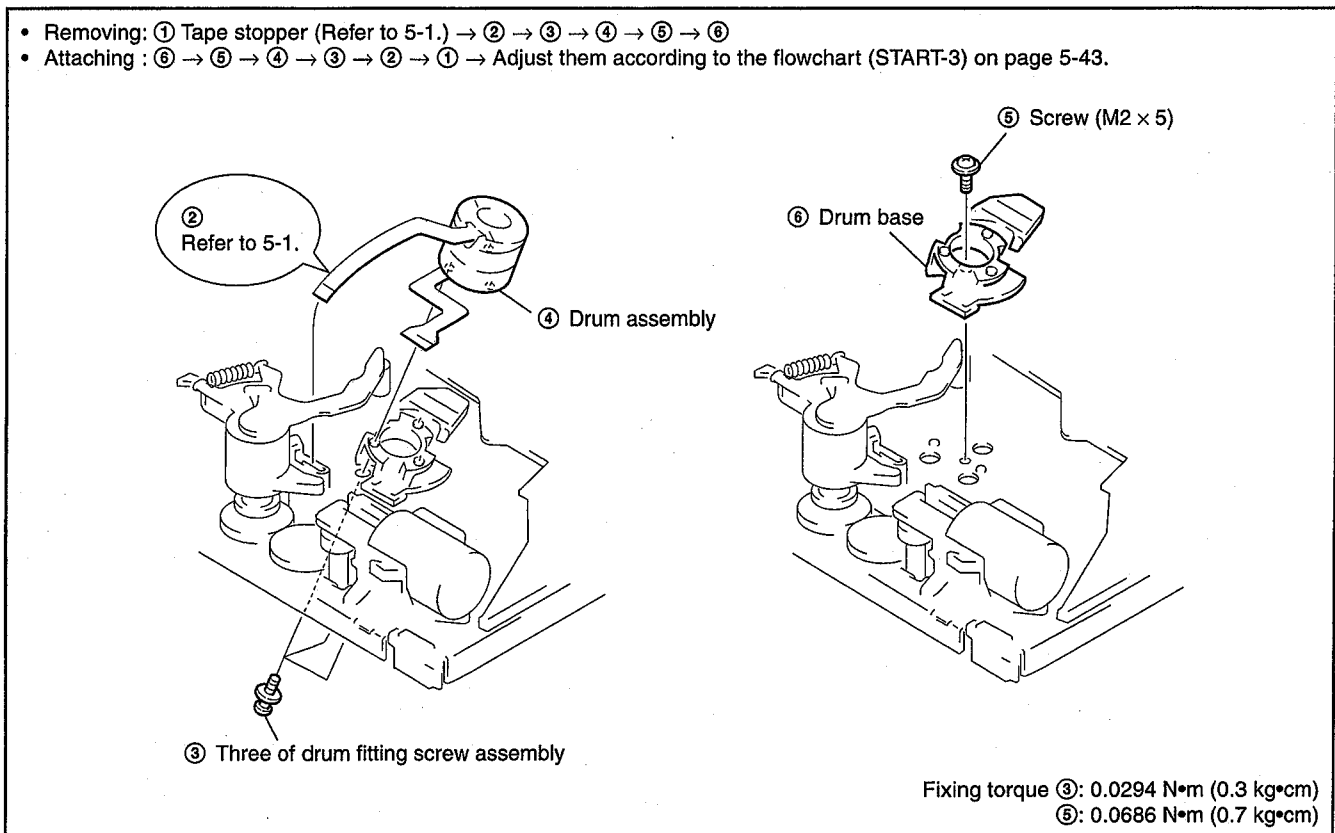
- Removing: ① → ② → ③ → ④ → ⑤ → ⑥
- Attaching : ⑥ → ⑤ → ④ → ③ → ② → ① → Adjust them according to the flowchart (START-3) on page 5-43.



### 5-2. DRUM ASSEMBLY AND DRUM BASE

#### • Removing/Attaching

- Removing: ① Tape stopper (Refer to 5-1.) → ② → ③ → ④ → ⑤ → ⑥
- Attaching : ⑥ → ⑤ → ④ → ③ → ② → ① → Adjust them according to the flowchart (START-3) on page 5-43.

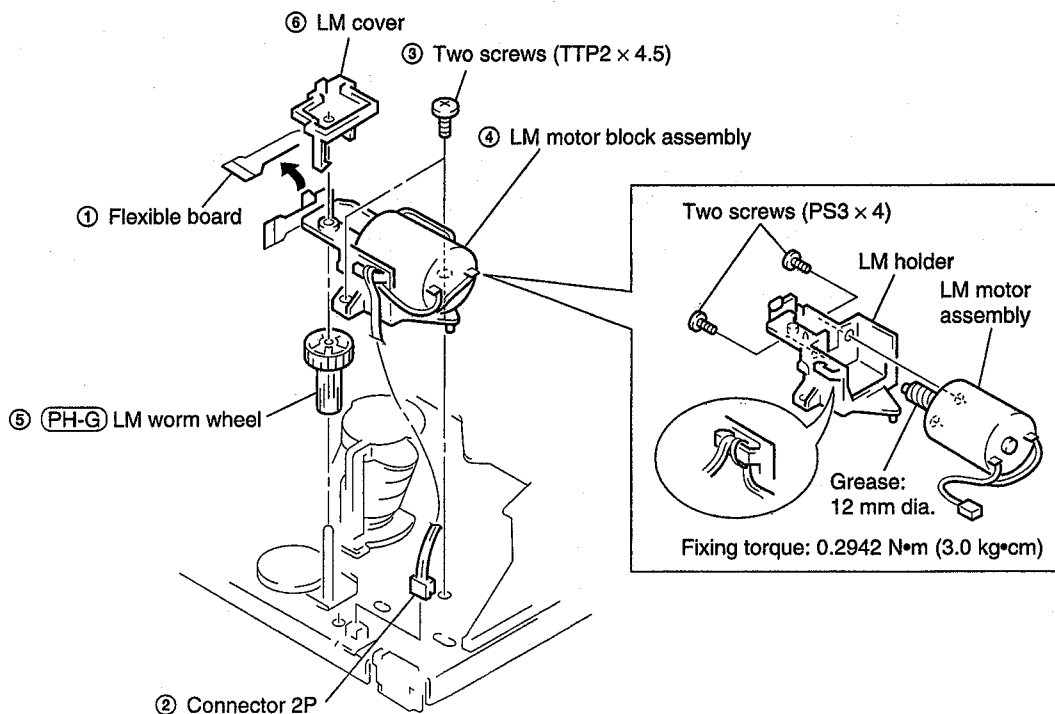




### 5-3. LM COVER, LM WORM WHEEL, LM HOLDER AND LM MOTOR ASSEMBLY

#### • Removing/Attaching

- Removing: ① → ② → ③ → ④ → ⑤ → ⑥
- Attaching : ⑥ → ⑤ → ④ → ③ → ② → ①

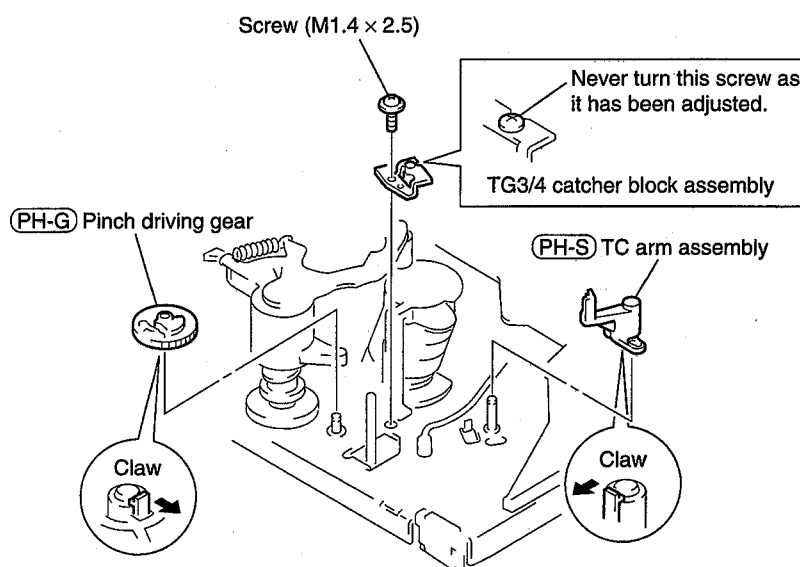


Fixing torque ③: 0.1961 N·m (2.0 kg·cm)

### 5-4. TG3/4 CATCHER BLOCK ASSEMBLY, PINCH DRIVING GEAR AND TC ARM ASSEMBLY

#### • Removing/Attaching

- Removing: After removing the LM motor assembly (Refer to 5-3.), remove each part.
- Attaching : After attaching each part and the LM motor block assembly, adjust them according to the flowchart (START-3) on page 5-43. (Only when the TG3/4 catcher block assembly is removed)

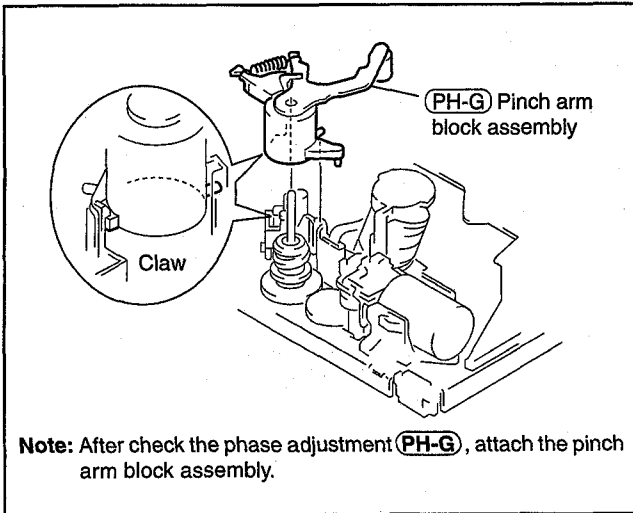


Fixing torque: 0.0686 N·m (0.7 kg·cm)

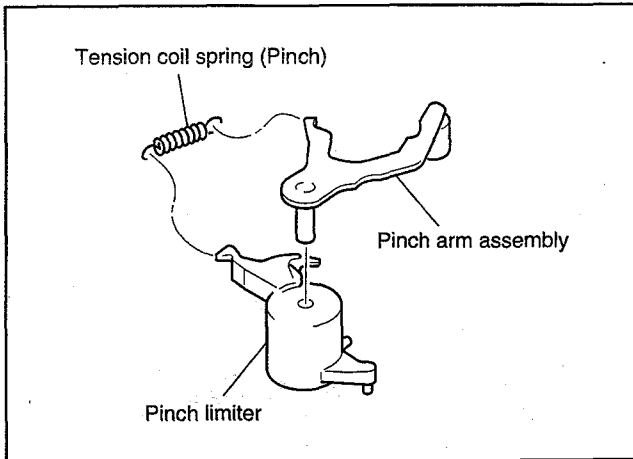
## 5-5. PINCH ARM ASSEMBLY, PINCH LIMITER AND TENSION COIL SPRING (PINCH)

### 1. Removing

- ①. Set the **UNLOADING** position. (Refer to page 5-3)
- ②. Pinch arm block assembly.



### ③. Pinch arm assembly and pinch limiter.



### 2. Attaching

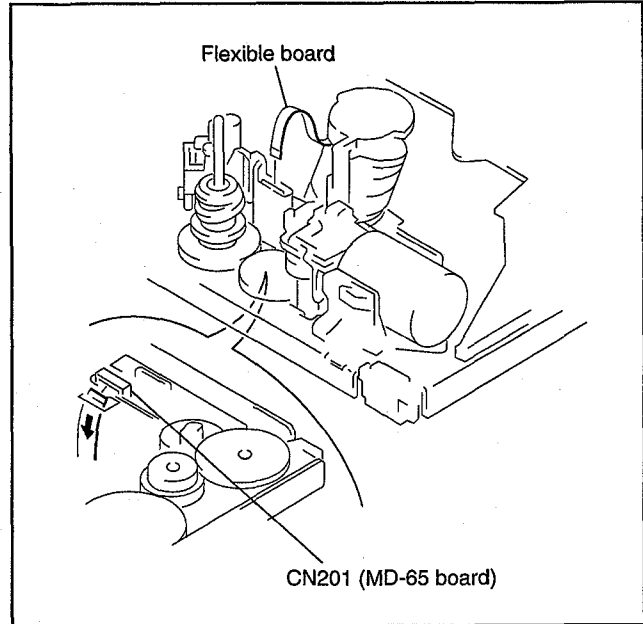
- ①. Attach the parts in the order of ① → ③ → ②.
- ②. Adjust them according to the flowchart (START-3) on page 5-43.

## 5-6. HC ARM, HC ROLLER ASSEMBLY, PINCH RETAINER, PINCH CAM GEAR AND TG5/6 CATCHER BLOCK ASSEMBLY

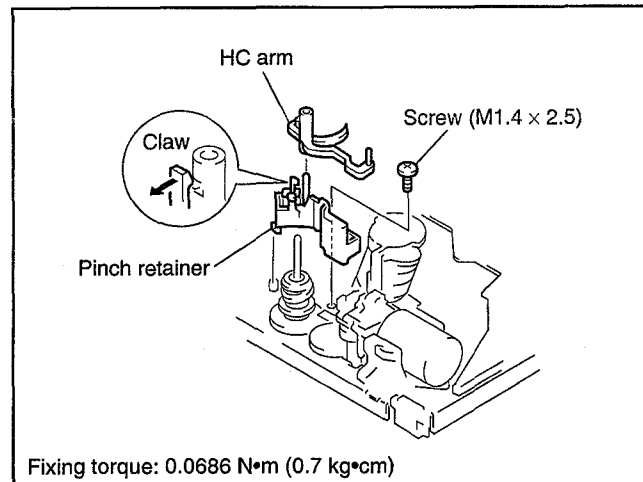
### 1. Removing

- ①. Set the **UNLOADING** position. (Refer to page 5-3)
- ②. Pinch arm block assembly. (Refer to 5-5)

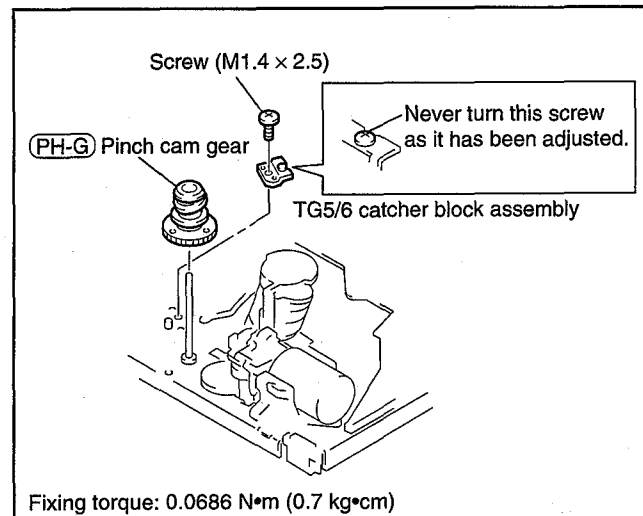
### ③. Flexible board.



### ④. HC arm, HC roller assembly and pinch retainer.



### ⑤. Pinch cam gear and TG5/6 catcher block assembly.



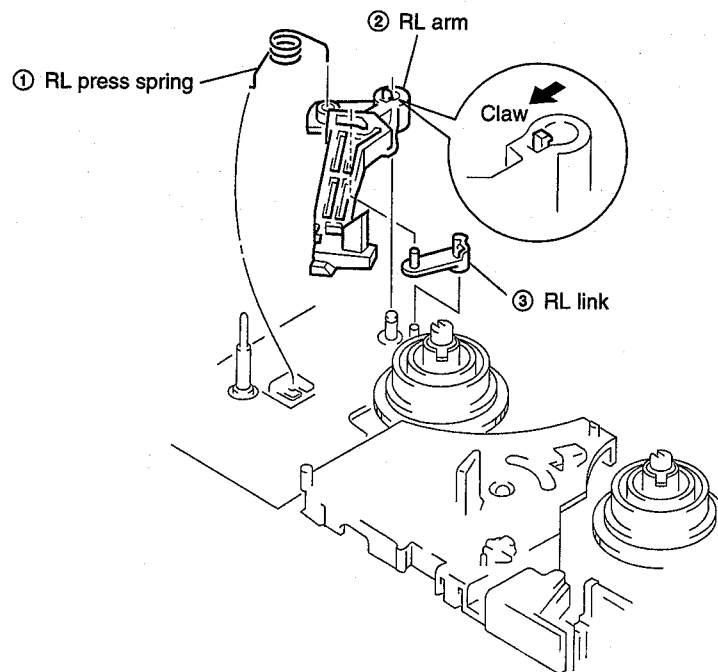
### 2. Attaching

- ①. Attach the parts in the order of ① → ⑤ → ④ → ③ → ②.
- ②. Adjust them according to the flowchart (START-3) on page 5-43.

## 5-7. RL ARM AND RL LINK

- Removing/Attaching ((L cassette) position. (Refer to page 5-2))

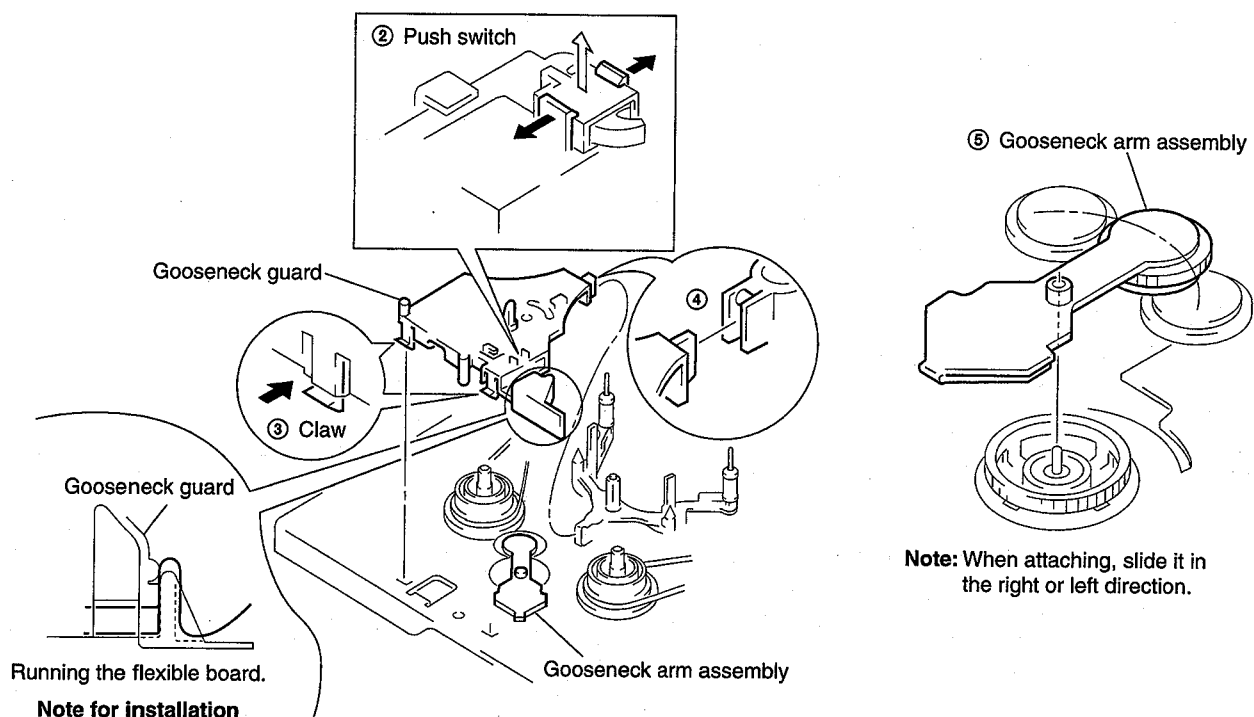
- Removing: ① → ② → ③
- Attaching : ③ → ② → ①



## 5-8. GOOSENECK GUARD AND GOOSENECK ARM ASSEMBLY

- Removing/Attaching ((L cassette) position. (Refer to page 5-2))

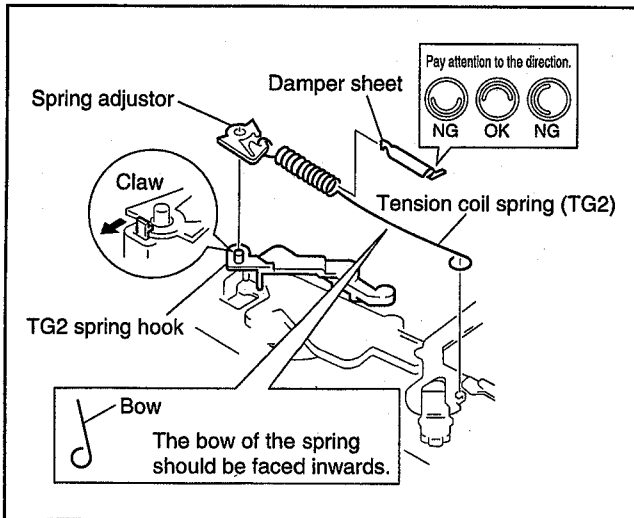
- Removing: ① Remove the RL arm. (Refer to 4-7) → ② → ③ → ④ → ⑤
- Attaching : ⑤ → ④ → ③ → ② → ①



## 5-9. TENSION COIL SPRING (TG2), SPRING ADJUSTOR, TG2 SPRING HOOK, TG2 SELECTION ARM AND DAMPER SHEET

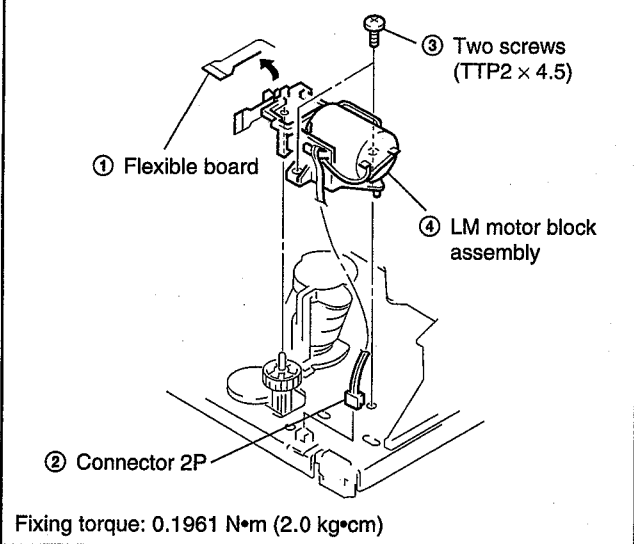
### 1. Removing

- ①. Set the **(UNLOADING)** position. (Refer to page 5-3)
- ②. Tension coil spring (TG2) and spring adjustor.

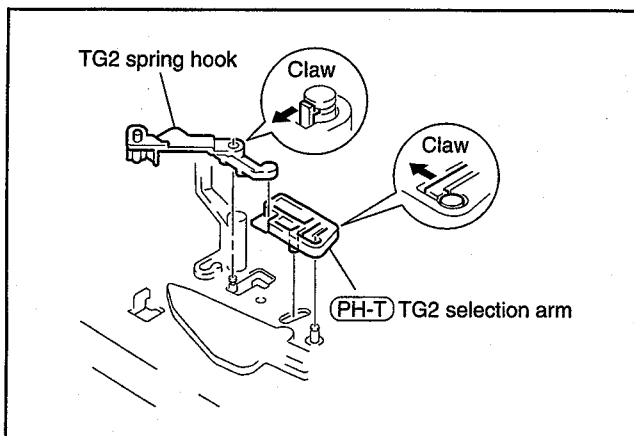


- ③. LM motor block assembly.

- Removing: ① → ② → ③ → ④
- Attaching : ④ → ③ → ② → ①



- ④. TG2 spring hook and TG2 selection arm.



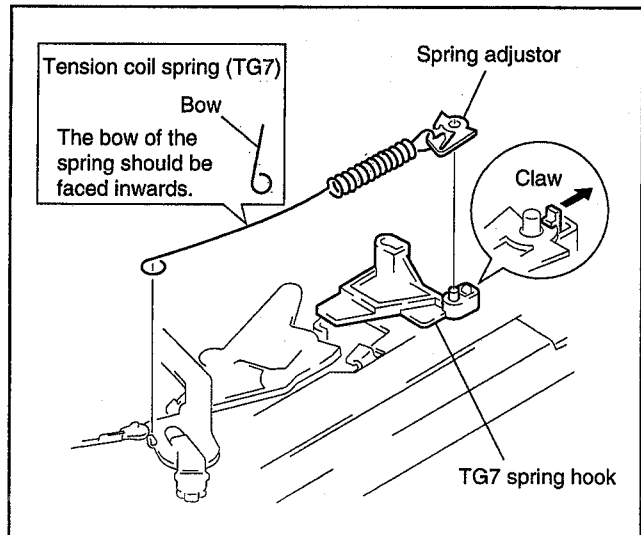
### 2. Attaching

- ①. Attach the parts in the order of ① → ④ → ② → ③.
- ②. Adjust them according to the flowchart (START-2) on page 5-43.

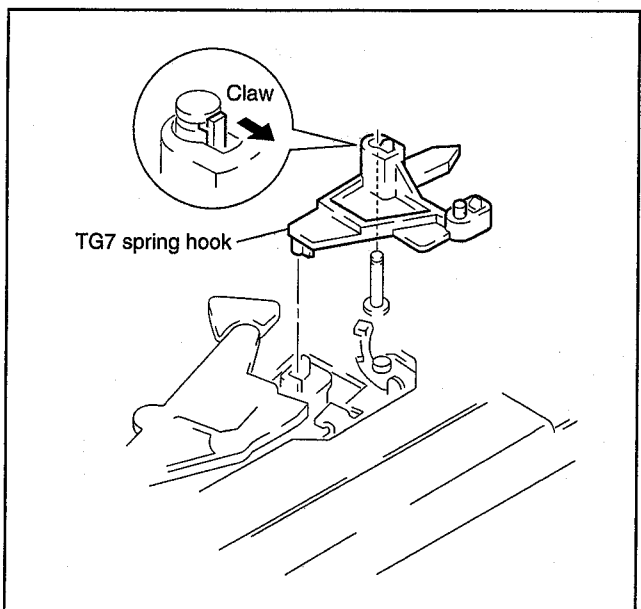
## 5-10. TENSION COIL SPRING (TG7), SPRING ADJUSTOR AND TG7 SPRING HOOK

### 1. Removing

- ①. Set the **(UNLOADING)** position. (Refer to page 5-3)
- ②. Tension coil spring (TG7) and spring adjustor.



- ③. TG7 spring hook.



### 2. Attaching

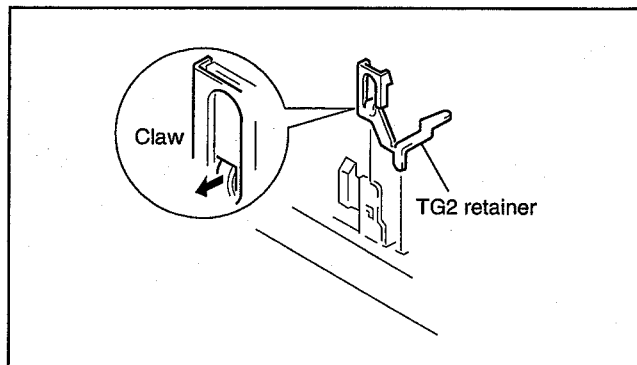
- ①. Attach the parts in the order of ① → ③ → ②.
- ②. Adjust them according to the flowchart (START-2) on page 5-43.

## 5-11. TG2 RETAINER, TG2 ARM ASSEMBLY (TG2 PLATE SPRING AND ET MAGNET), S TENSION REGULATOR BAND ASSEMBLY AND TG2 LOAD ARM ASSEMBLY

### 1. Removing

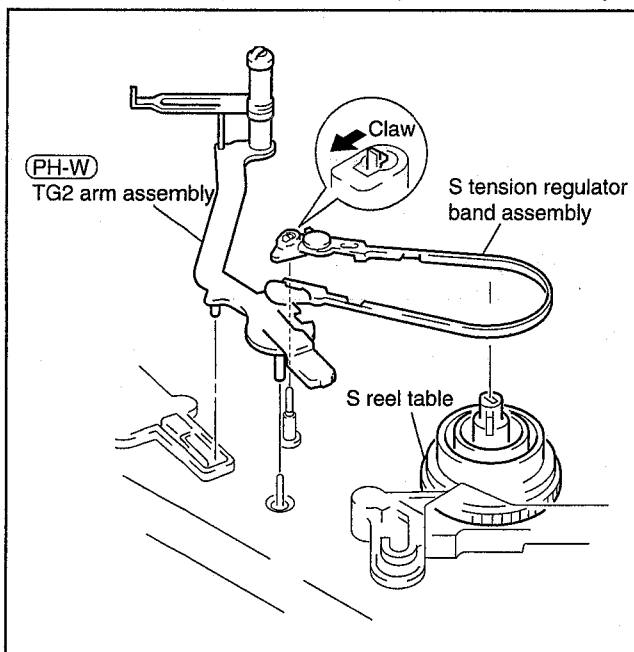
①. Tension coil spring (TG2), spring adjuster, LM motor block assembly and TG2 spring hook. (Refer to 5-9)

②. TG2 retainer.

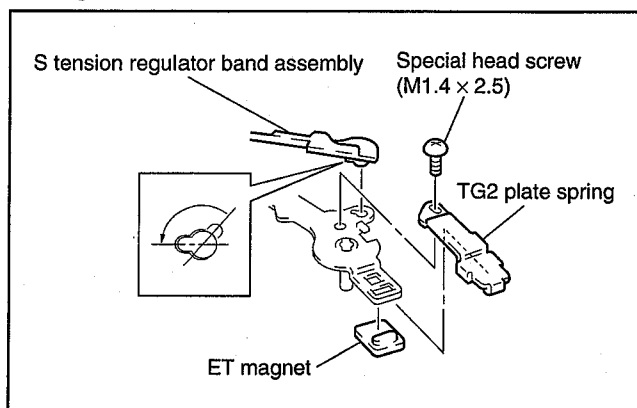


③. Set the **LOADING** position. (Refer to page 5-3)

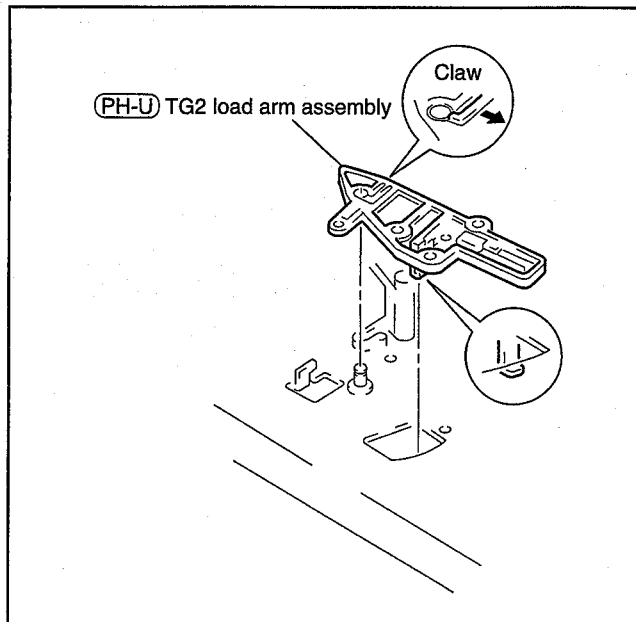
④. TG2 arm assembly and S tension regulator band assembly.



⑤. S tension regulator band assembly, TG2 plate spring and ET magnet.



⑥. TG2 load arm assembly.



### 2. Attaching

①. Set the **UNLOADING** position. (Refer to page 5-3)

②. Attach the parts in the order of ⑥ → ③ → ⑤ → ④ → ② → ①.

③. Operation check: **LOADING** / **UNLOADING**. (Refer to page 5-3)

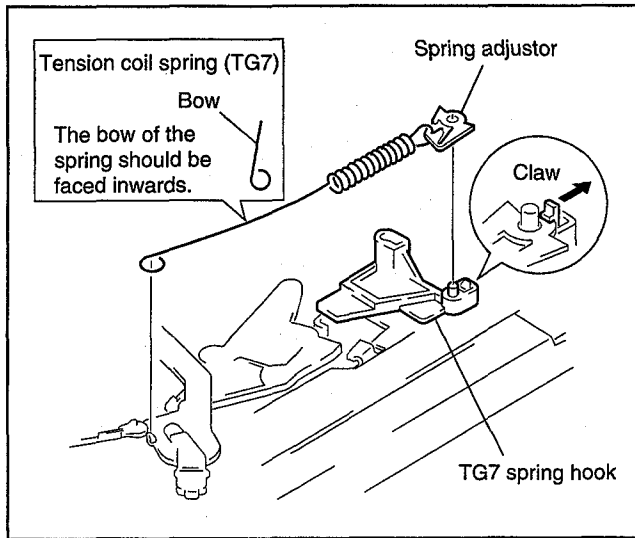
④. Adjust them according to the flowchart (START-2) on page 5-43.



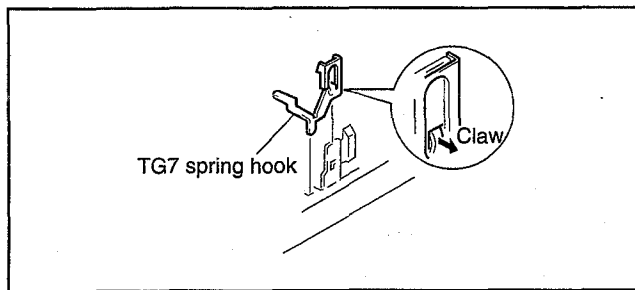
## 5-12. TG7 RETAINER, TG7 ARM ASSEMBLY (TG7 PLATE SPRING AND ET MAGNET), T TENSION REGULATOR BAND ASSEMBLY AND TG7 LOAD ARM ASSEMBLY

### 1. Removing

①. Tension coil spring (TG7), spring adjuster.

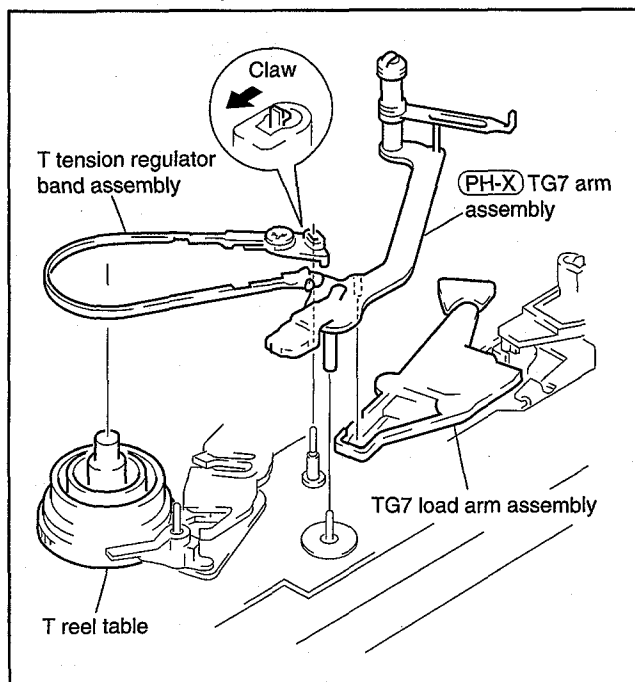


②. TG7 spring hook.

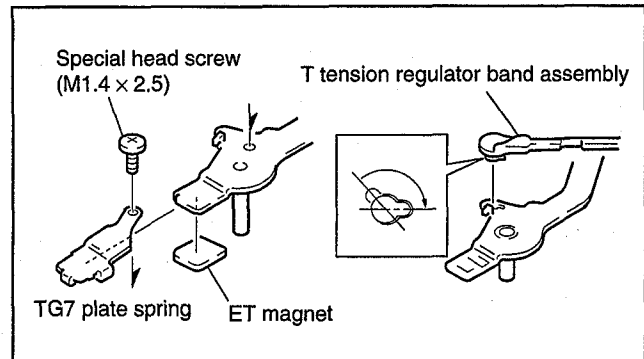


③. Set the **LOADING** position. (Refer to page 5-3)

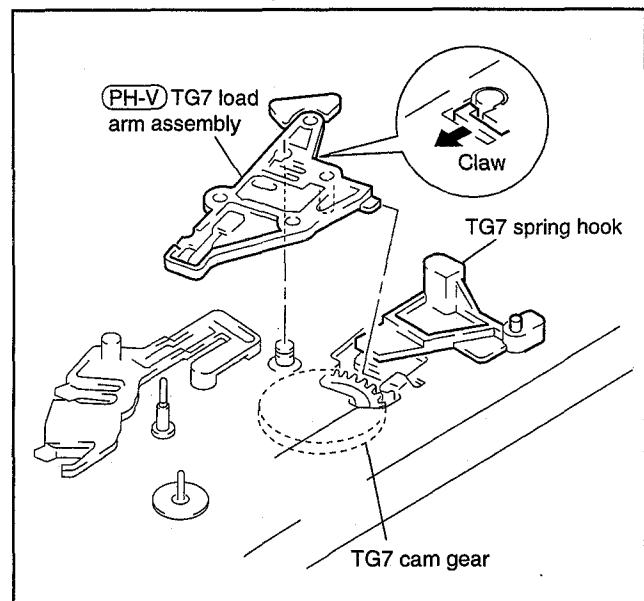
④. TG7 arm assembly and T tension regulator band assembly.



⑤. TG7 plate spring, ET magnet and T tension regulator band assembly.



⑥. TG7 load arm assembly.



### 2. Attaching

①. Set the **UNLOADING** position. (Refer to page 5-3)

②. Attach the parts in the order of ⑥ → ③ → ⑤ → ④ → ② → ①.

③. Operation check: **LOADING** / **UNLOADING**. (Refer to page 5-3.)

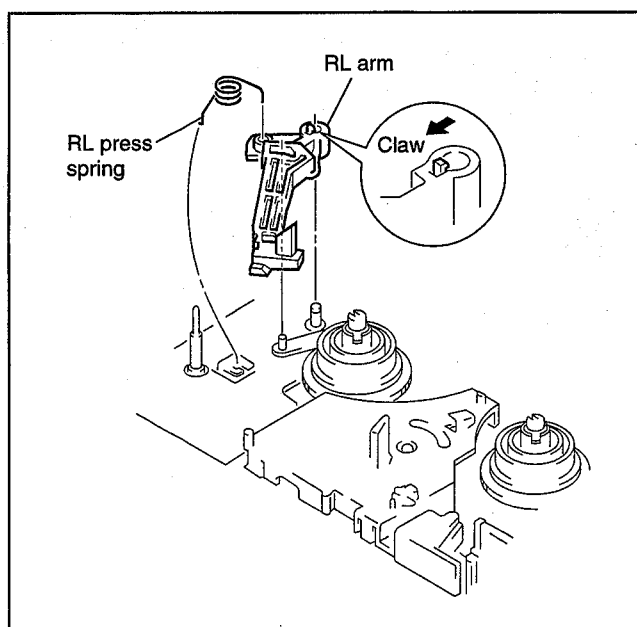
④. Adjust them according to the flowchart (START-2) on page 5-43.

## 5-13. S REEL TABLE BLOCK ASSEMBLY

### 1. Removing

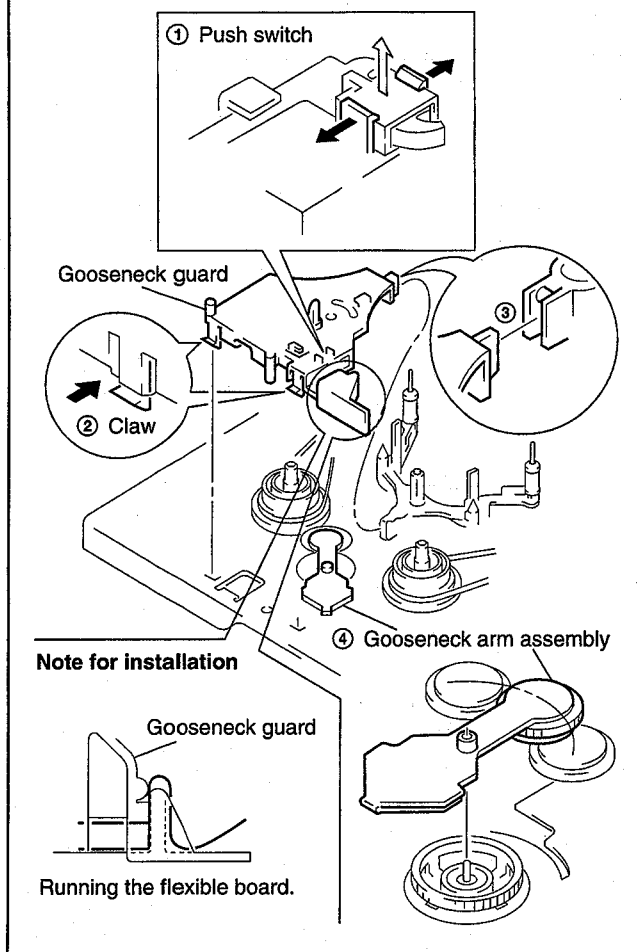
①. Set the **L cassette** position. (Refer to page 5-2)

②. RL arm

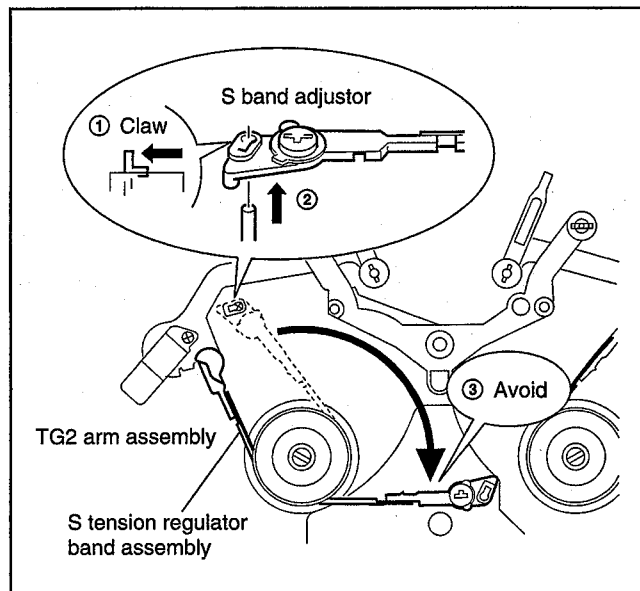


③. Gooseneck guard.

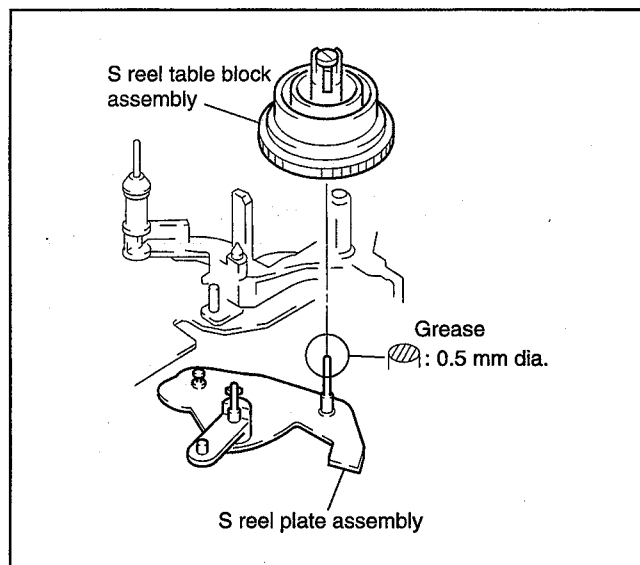
- Removing: ① → ② → ③ → ④
- Attaching: ④ → ③ → ② → ①



④. S band adjustor.



⑤. S reel table block assembly.



### 2. Attaching

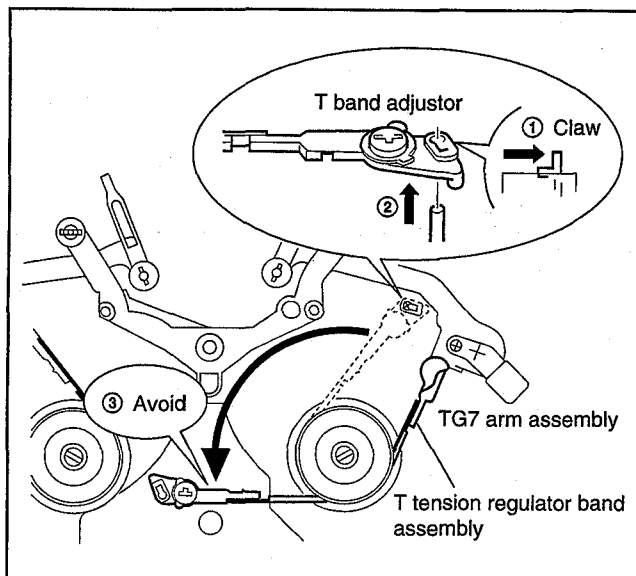
- ①. Attach the parts in the order of ① → ⑤ → ④ → ③ → ②.
- ②. Adjust them according to the flowchart (START-1) on page 5-43.

## 5-14. T REEL HOLDER AND T REEL TABLE BLOCK ASSEMBLY

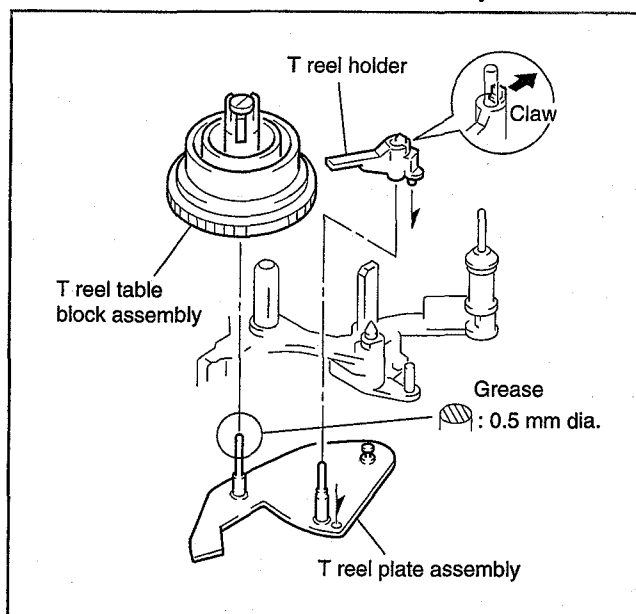
### 1. Removing

①. Set the **(L cassette)** position. (Refer to page 5-2)

②. T band adjustor.



③. T reel holder and T reel table block assembly.



### 2. Attaching

①. Attach the parts in the order of ① → ③ → ②.

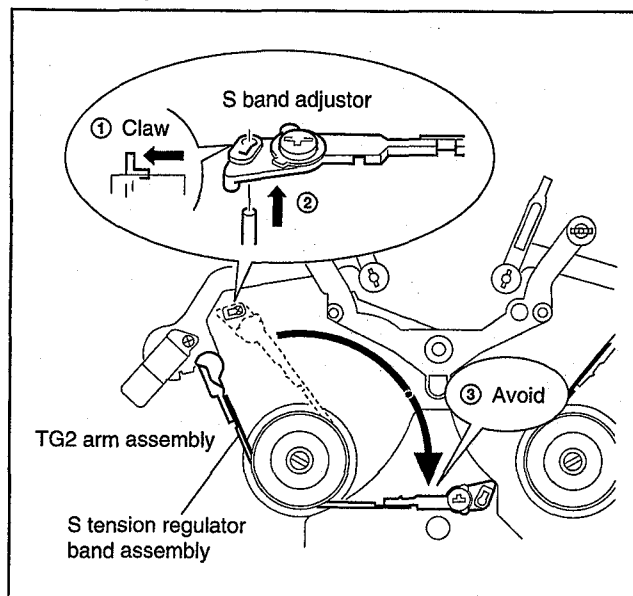
②. Adjust them according to the flowchart (START-1) on page 5-43.

## 5-15. S REEL PLATE ASSEMBLY

### 1. Removing

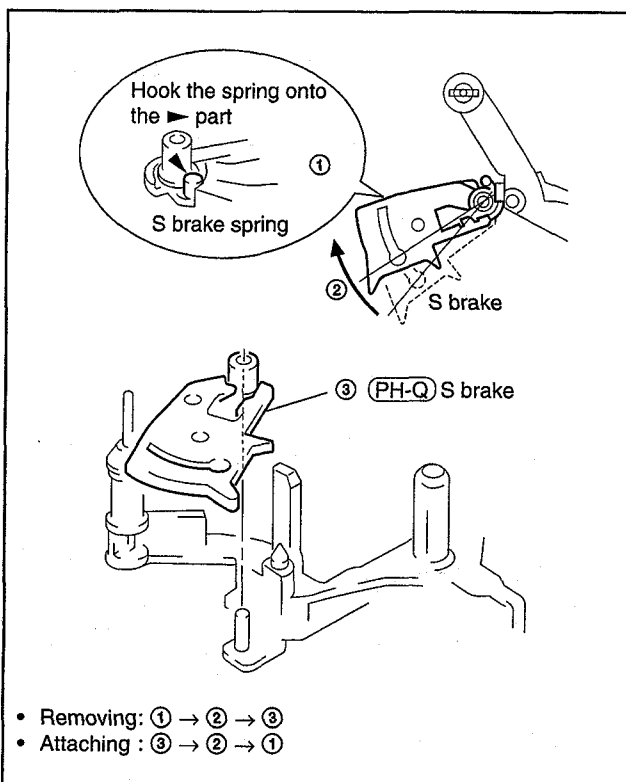
①. Set the **(L cassette)** position. (Refer to page 5-2)

②. S band adjustor.



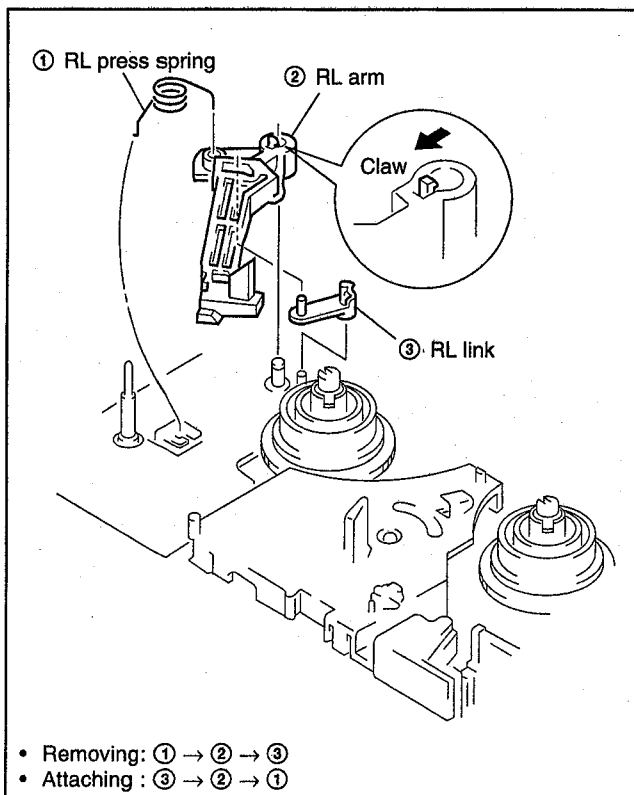
③. Set the **(LOADING)** position. (Refer to page 5-3)

④. S brake.

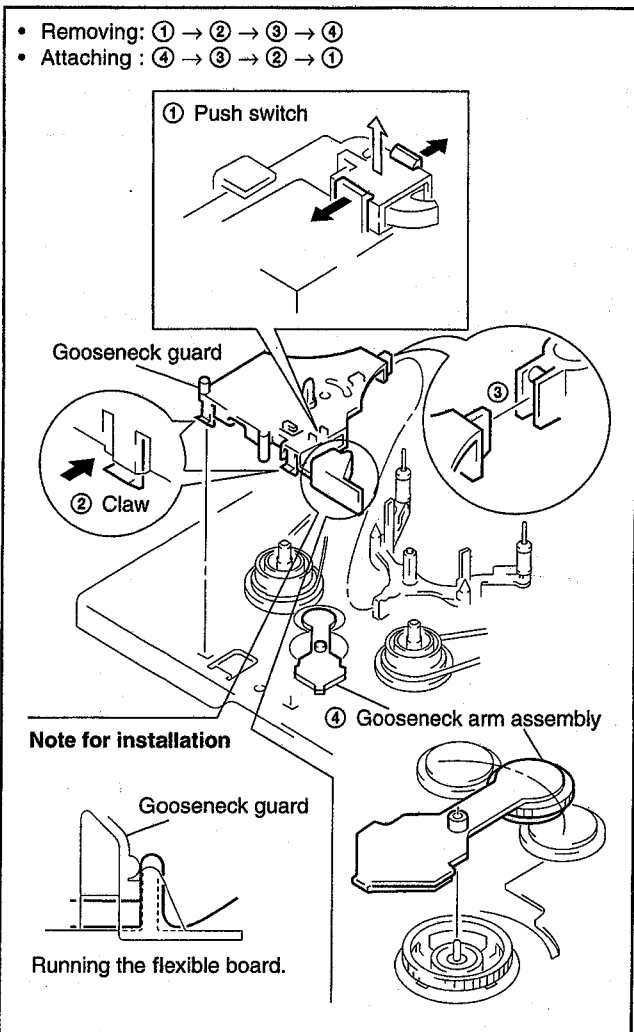


- Removing: ① → ② → ③
- Attaching : ③ → ② → ①

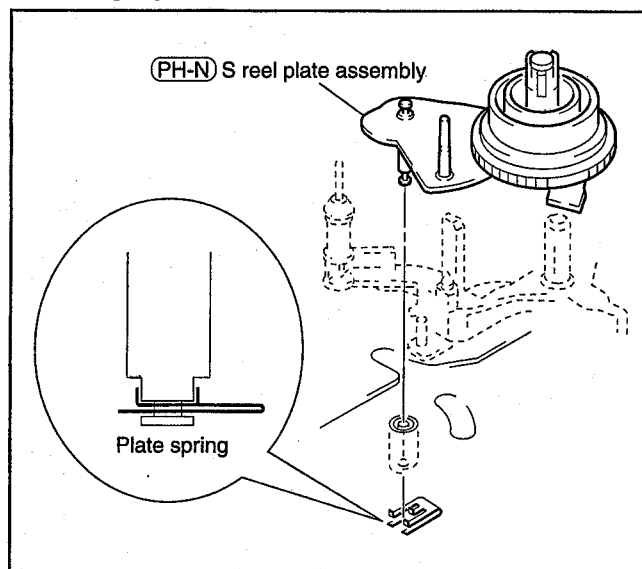
⑤. RL arm and RL link.



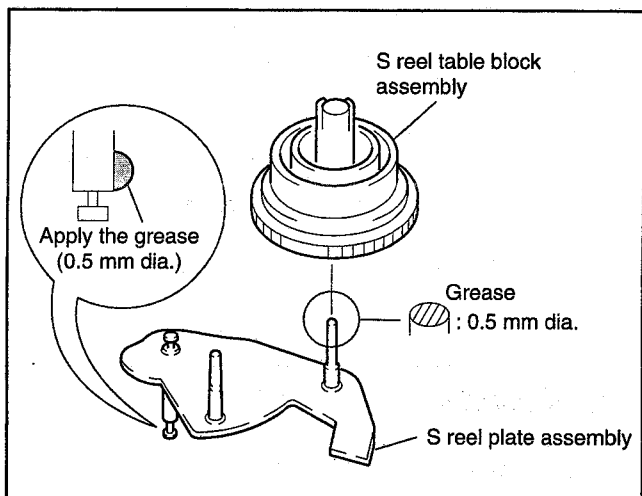
⑥. Gooseneck guard.



⑦. Plate spring



⑧. S reel plate assembly.



**2. Attaching**

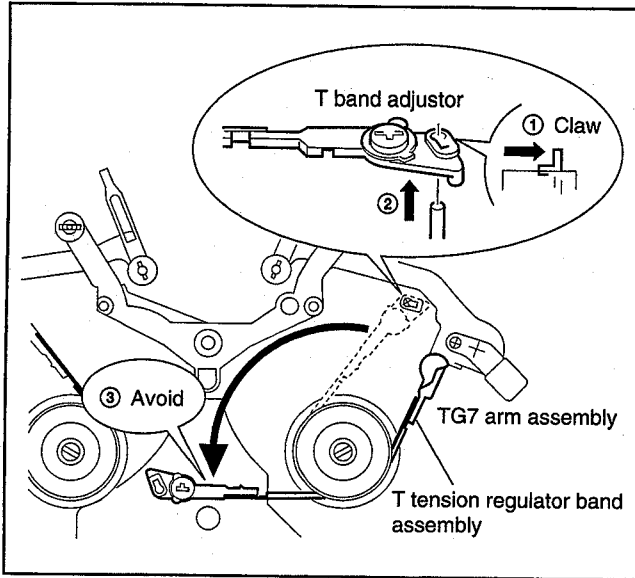
- ①. Attach the parts in the order of ① → ⑧ → ⑦ → ④ → ③ → ② → ⑥ → ⑤.
- ②. Adjust them according to the flowchart (START-1) on page 5-43.

## 5-16. T REEL PLATE ASSEMBLY

### 1. Removing

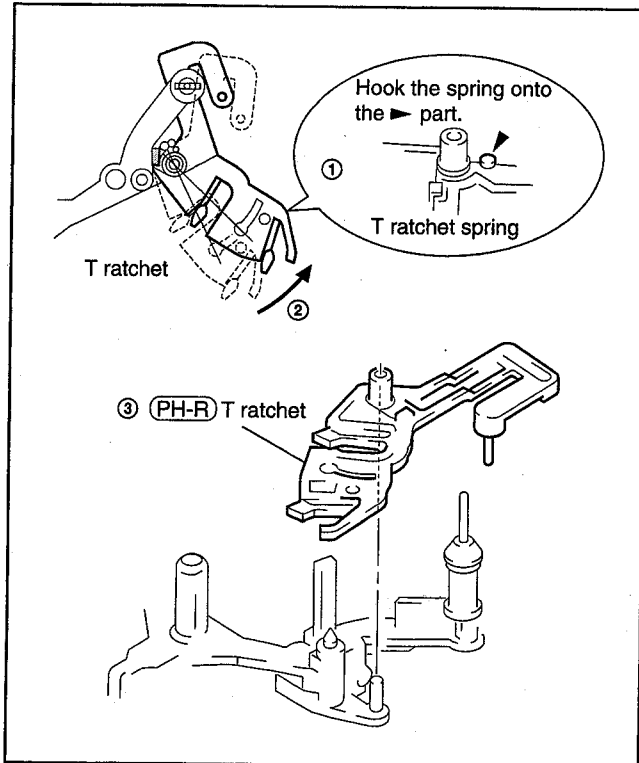
①. Set the **L cassette** position. (Refer to page 5-2)

②. T band adjuster.

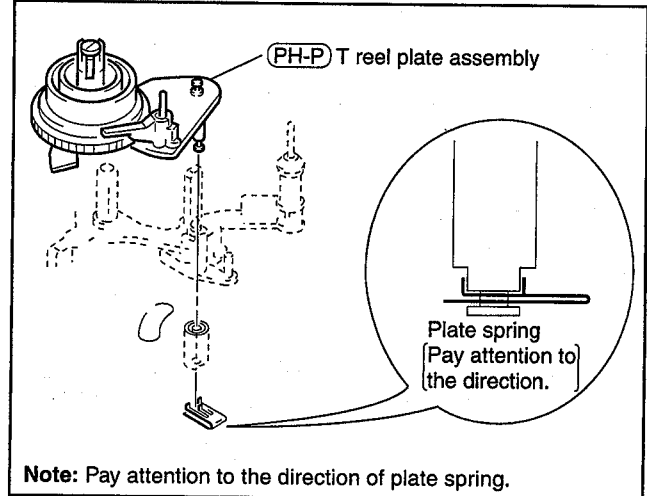


③. Set the **LOADING** position. (Refer to page 5-3)

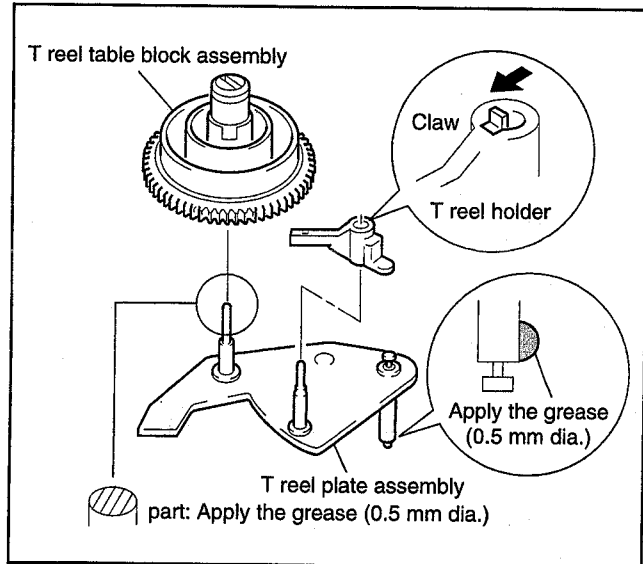
④. T ratchet.



⑤. Plate spring.



⑥. T reel plate assembly.



### 2. Attaching

①. Attach the parts in the order of ① → ⑥ → ⑤ → ③ → ④ → ②.

②. Adjust them according to the flowchart (START-1) on page 5-43.

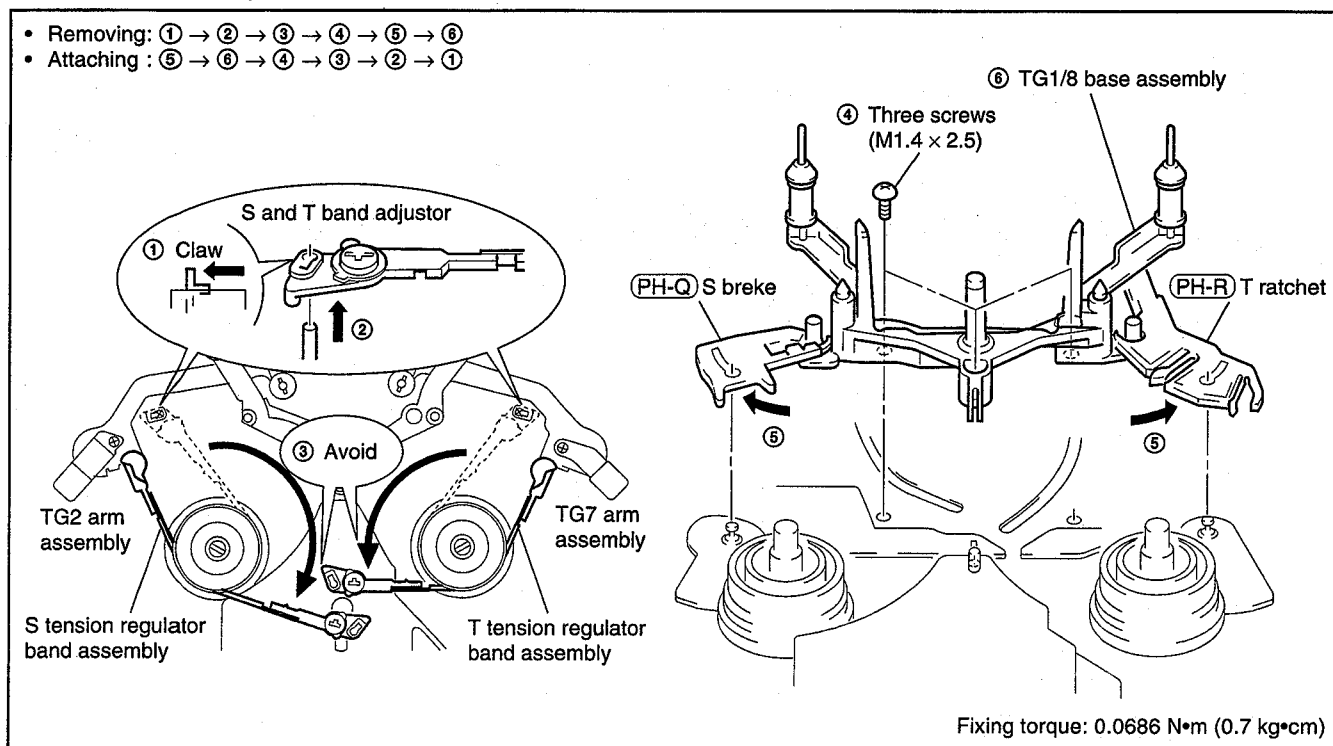
## 5-17. TG1/8 BASE ASSEMBLY, S BRAKE AND T RATCHET

### 1. Removing

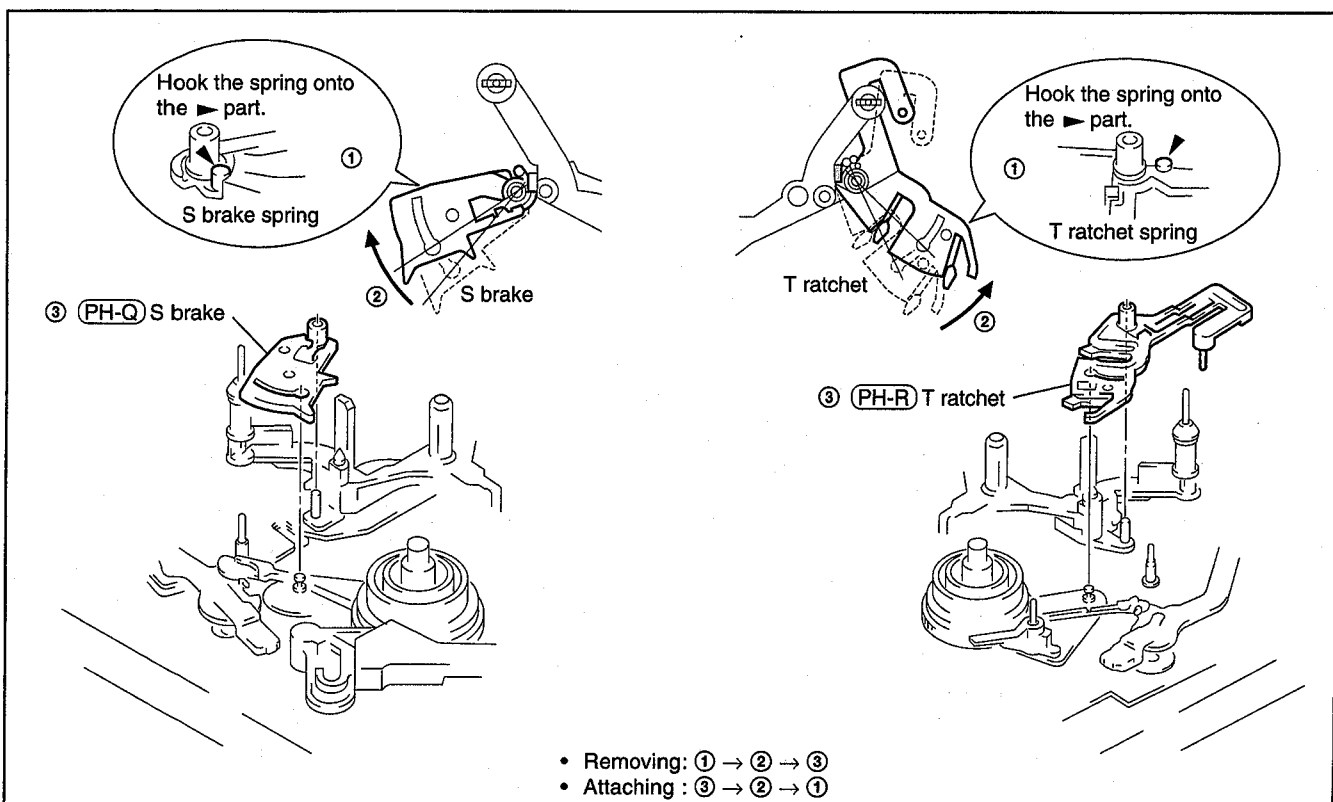
①. Set the **LOADING** / **L cassette** positions. (Refer to pages 5-2 to 5-3)

②. TG1/8 base assembly.

- Removing: ① → ② → ③ → ④ → ⑤ → ⑥
- Attaching : ⑤ → ⑥ → ④ → ③ → ② → ①



③. S brake and T ratchet.



### 2. Attaching

①. Attach the parts in the order of ① → ③ → ②.

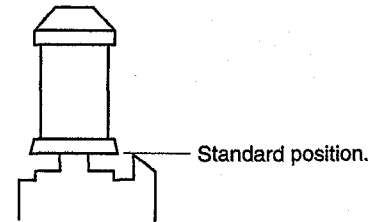
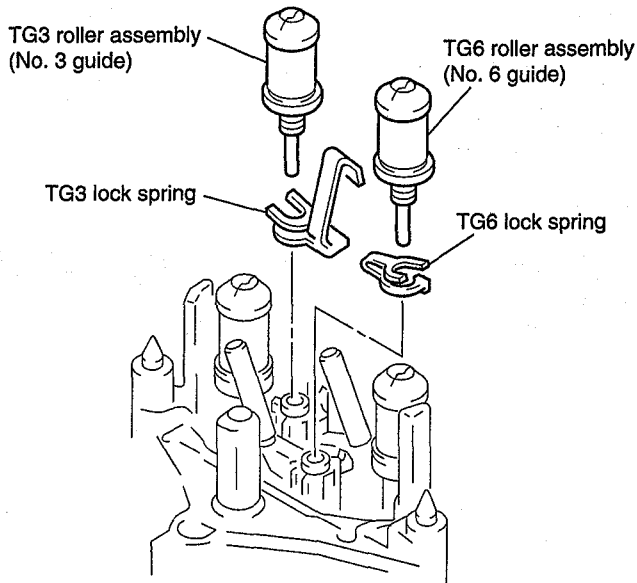
②. Adjust them according to the flowchart (START-2) on page 5-43.



## 5-18. TG3/6 ROLLER ASSEMBLY AND TG3/6 LOCK SPRING

### • Removing/Attaching

**Note:** **UNLOADING** position. (Refer to page 5-3)



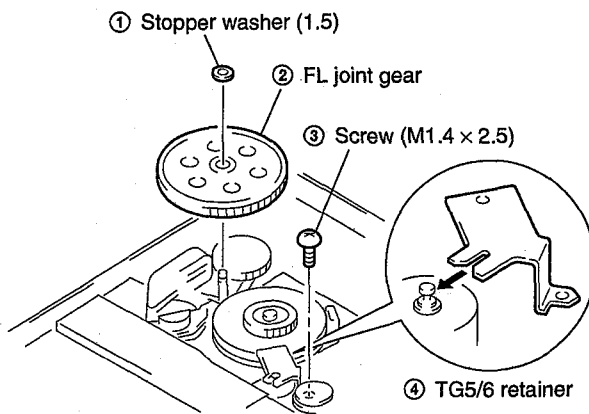
Preset the height as shown in the figure.

**Note:** After attaching each part, adjust them according to the flowchart (START-3) on page 5-43.

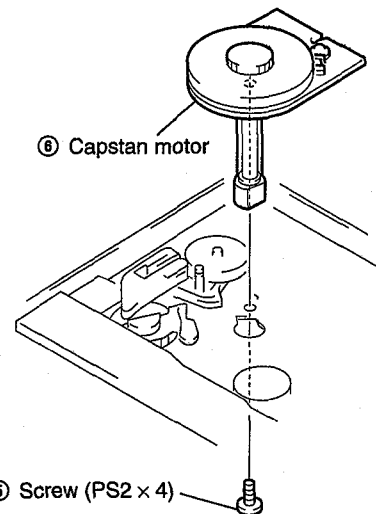
## 5-19. FL JOINT GEAR, TG5/6 RETAINER AND CAPSTAN MOTOR

### • Removing/Attaching

- Removing: ① → ② → ③ → ④ → ⑤ → ⑥
- Attaching : ⑥ → ⑤ → ④ → ③ → ② → ①



Fixing torque ③: 0.0686 N·m (0.7 kg·cm)

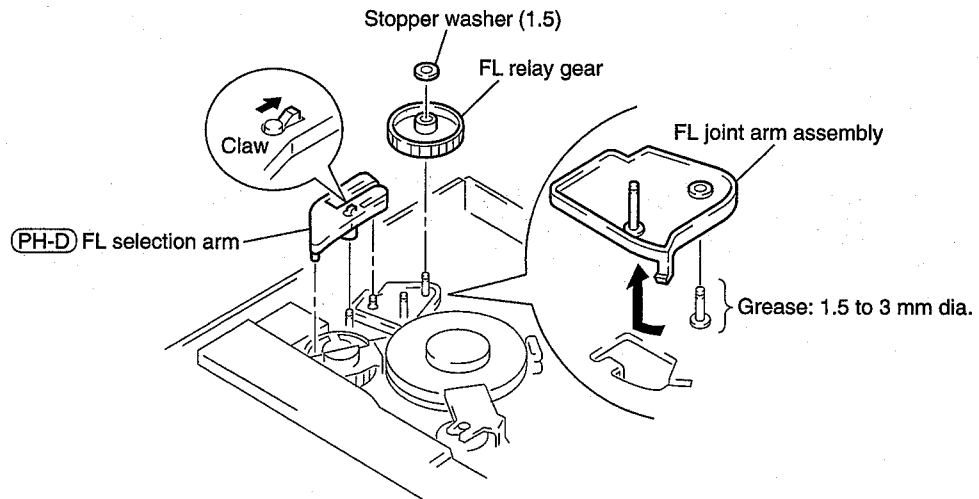


Fixing torque ⑥: 0.1961 N·m (2.0 kg·cm)

## 5-20. FL SELECTION ARM, FL RELAY GEAR AND FL JOINT ARM ASSEMBLY

### • Removing/Attaching

**Note:** First, remove the FL joint gear. (Refer to 5-19)

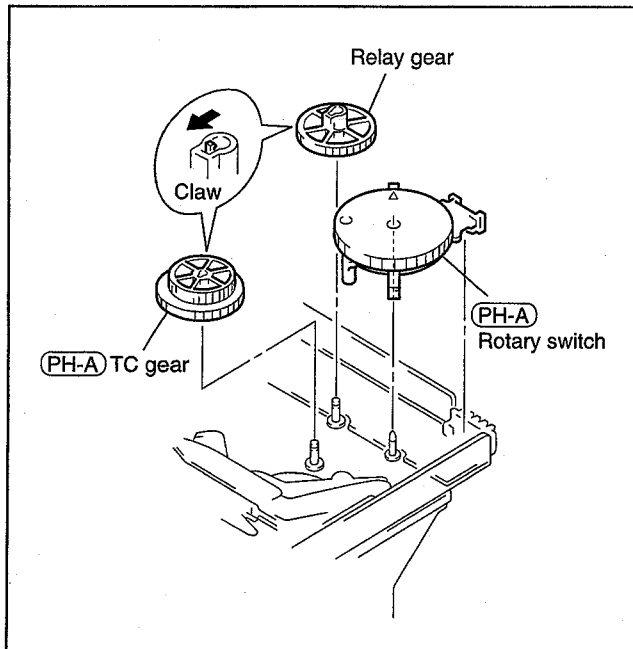


## 5-21. ROTARY SWITCH, TC GEAR AND RELAY GEAR

### 1. Removing

①. Set the **UNLOADING** position. (Refer to page 5-3)

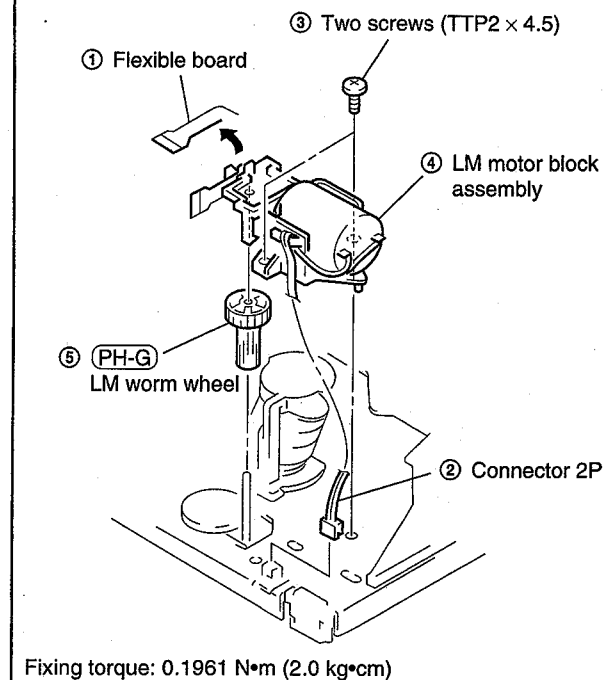
②. Rotary switch, TC gear and relay gear.



### 2. Attaching

①. Remove the LM motor block assembly and LM worm wheel. (To synchronize phase of the pinch driving system (front side) and the loading driving system (back side))

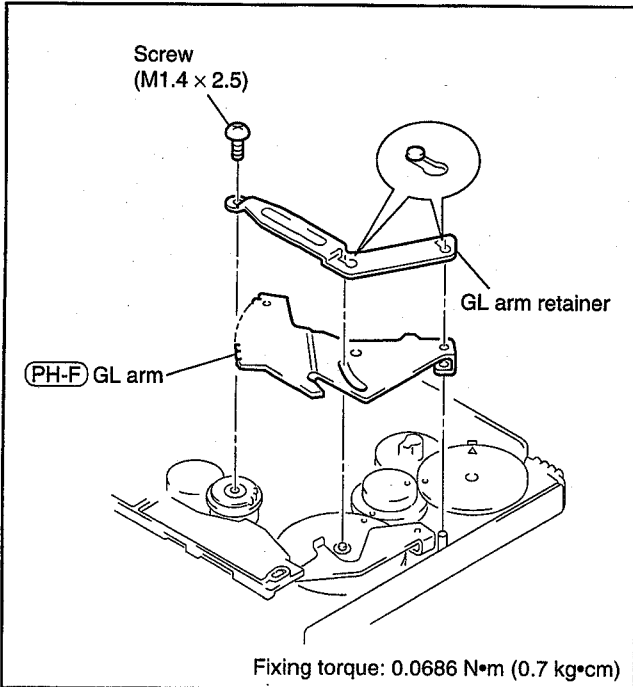
- Removing: ① → ② → ③ → ④ → ⑤
- Attaching : ⑤ → ④ → ③ → ② → ①



- ②. Attach the TC gear, relay gear and rotary switch.
- ③. Attach the LM worm wheel and LM motor block assembly.

## 5-22. GL ARM RETAINER AND GL ARM

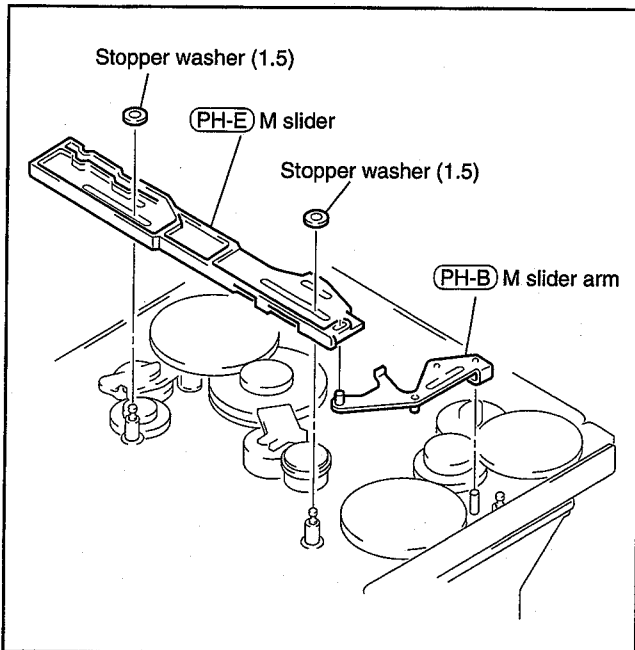
- Removing/Attaching (**UNLOADING**) position. (Refer to page 5-3))



## 5-23. M SLIDER AND M SLIDER ARM

### 1. Removing

- ① Set the **UNLOADING** position. (Refer to page 5-3)
- ② GL arm retainer and GL arm. (Refer to 5-22)
- ③ M slider and M slider arm.



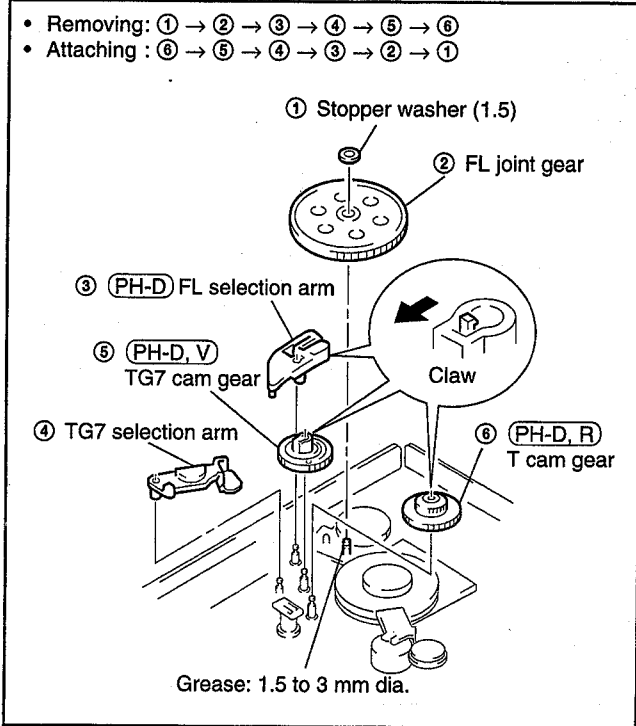
### 2. Attaching

- Attach the parts in the order of ① → ③ → ②.

## 5-24. TG7 SELECTION ARM, TG7 CAM GEAR AND T CAM GEAR

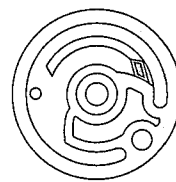
### 1. Removing

- ① Set the **UNLOADING** position. (Refer to page 5-3)
- ② GL arm retainer and GL arm. (Refer to 5-22)
- ③ M slider and M slider arm. (Refer to 5-23)
- ④ TG7 selection arm, TG7 cam gear and T cam gear.



### 2. Attaching

- ① Attach the parts in the order of ① → ④ → ③ → ②.



Cam groove on the T cam gear.

Apply the grease (3 mm dia) to of cam groove (part).

T cam gear  
(T ratchet driving side)

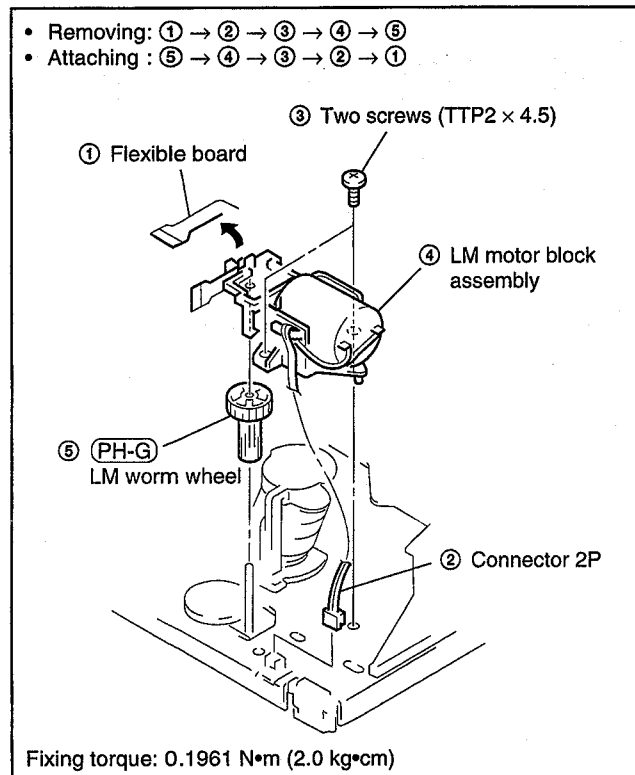
## 5-25. MAIN CAM, TG2 SL ARM ASSEMBLY AND TENSION COIL SPRING (TG2 SL)

The two grooves on one side of the main cam drive the TG2 selection arm and the TG2 load arm assembly. Since it is difficult to attach the main cam, fix the TG2 selection arm and the TG2 load arm assembly with the main cam's phase adjusted correctly (Nearly unloading position (See 3-1. Phase Adjustment **A**): page 5-6)), so that later mounting work can be performed smoothly. If fixed parts are shifted, follow "3-3. Phase Adjustment **T**, **U**": page 5-11".

### 1. Removing

①. Set the **UNLOADING** position. (Refer to page 5-3)

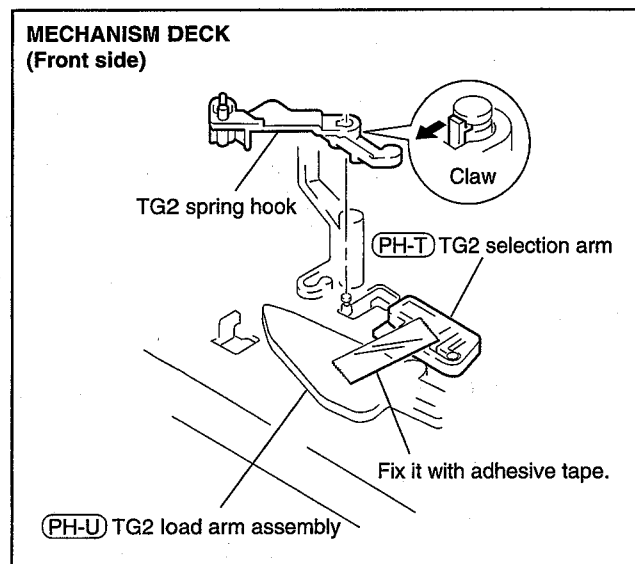
②. LM motor block assembly and LM worm wheel.



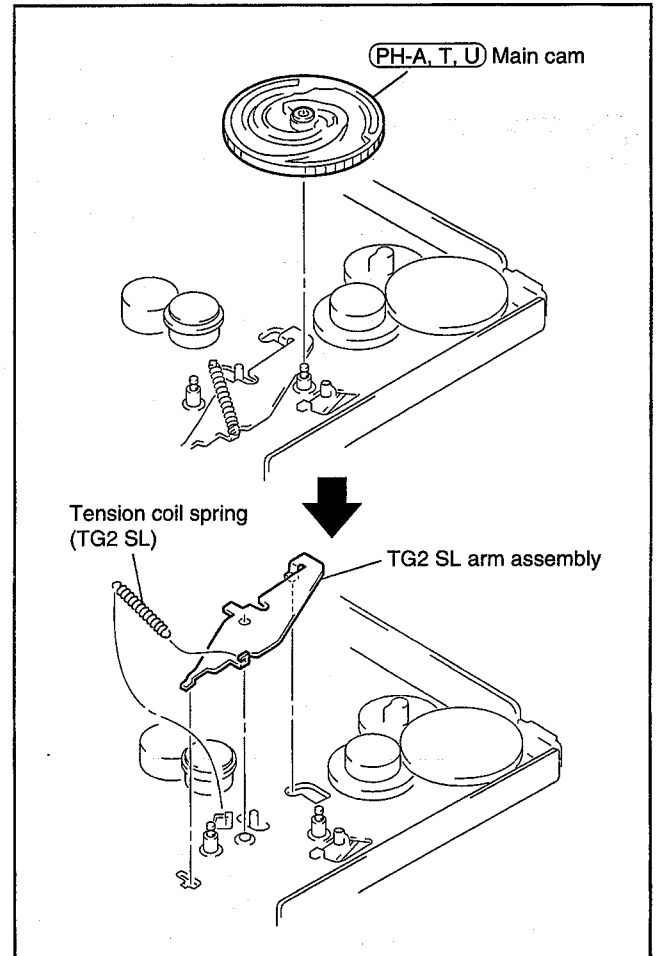
③. GL arm retainer and GL arm. (Refer to 5-22)

④. M slider and M slider arm. (Refer to 5-23)

⑤. TG2 spring hook.



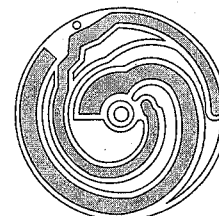
⑥. Main cam, TG2 SL arm assembly and tension coil spring (TG2 SL).



### 2. Attaching

①. Attach the parts in the order of ① → ⑥ → ⑤ → ④ → ③ → ②.

②. Adjust them according to the flowchart (START-2) on page 5-43.



Apply the grease (12 mm dia.) to each two of cam groove (part).

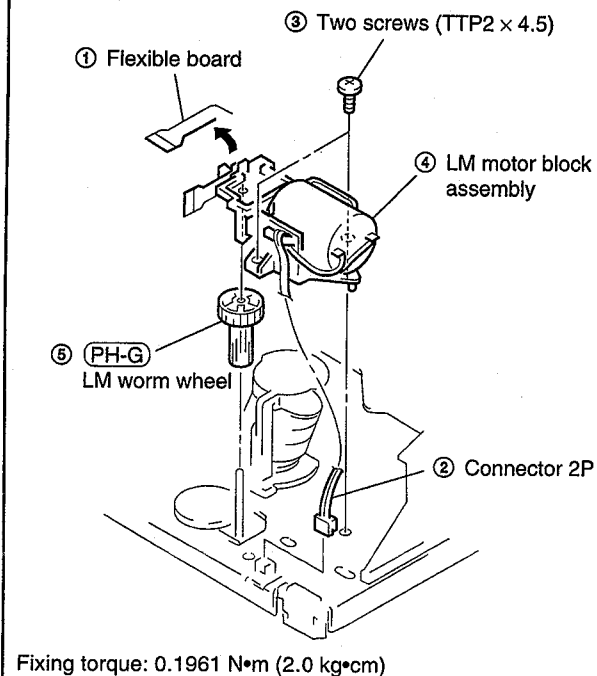
## 5-26. TG3/4 ARM BLOCK ASSEMBLY (TG3/4 ARM ASSEMBLY, TG3/4 LIMITER SPRING AND TG3/4 GEAR), TG3/4 BASE BLOCK ASSEMBLY (TG3/4 BASE ASSEMBLY)

### 1. Removing

①. Set the **UNLOADING** position. (Refer to page 5-3)

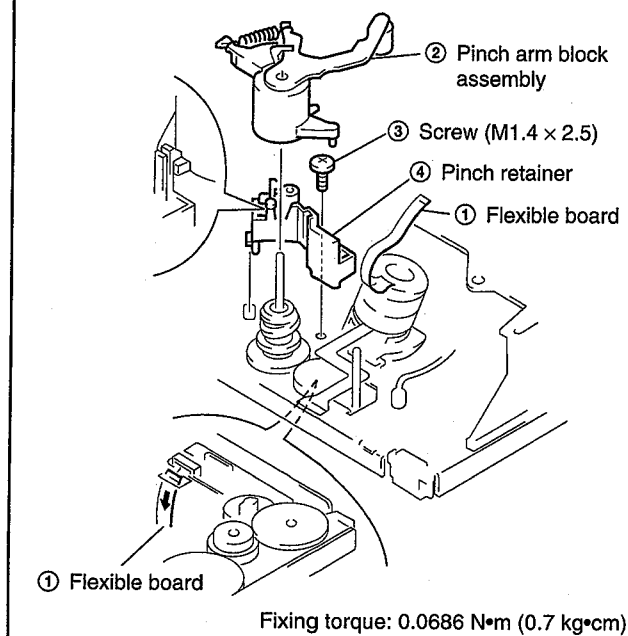
②. LM motor block assembly and LM worm wheel.

- Removing: ① → ② → ③ → ④ → ⑤
- Attaching: ⑤ → ④ → ③ → ② → ①

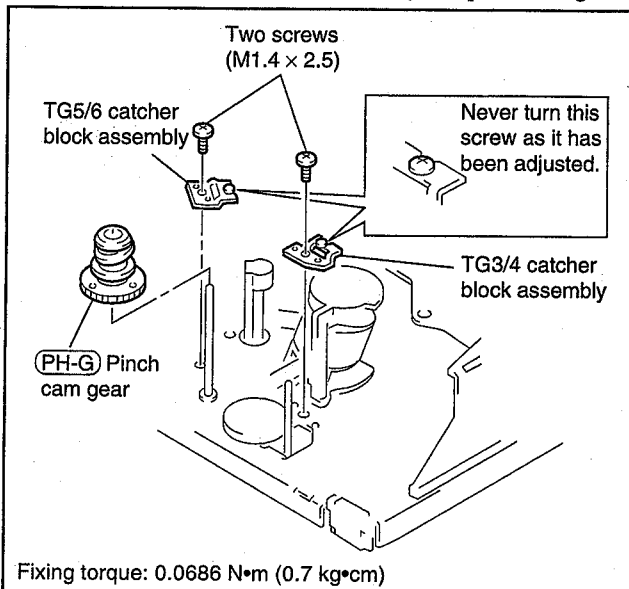


③. Pinch arm block assembly and pinch retainer.

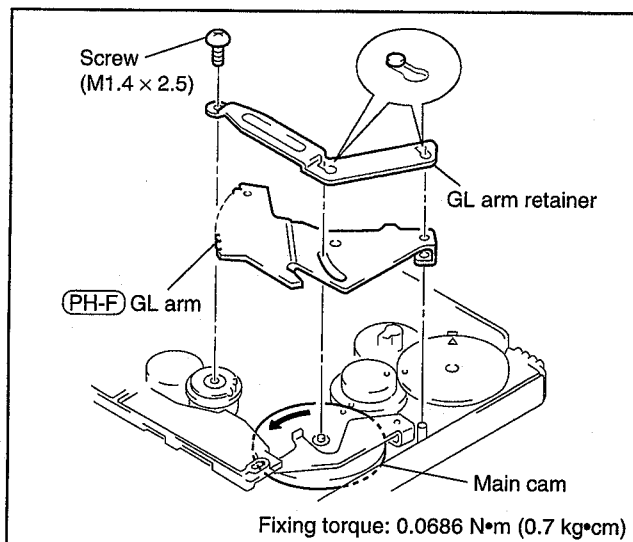
- Removing: ① → ② → ③ → ④
- Attaching: ④ → ③ → PH-G → ② → ①



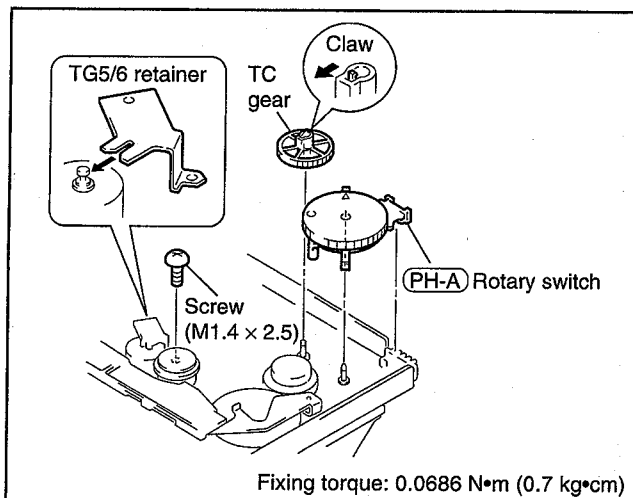
④. TG3/4, TG5/6 catcher block assembly and pinch cam gear.



⑤. GL arm retainer and GL arm.

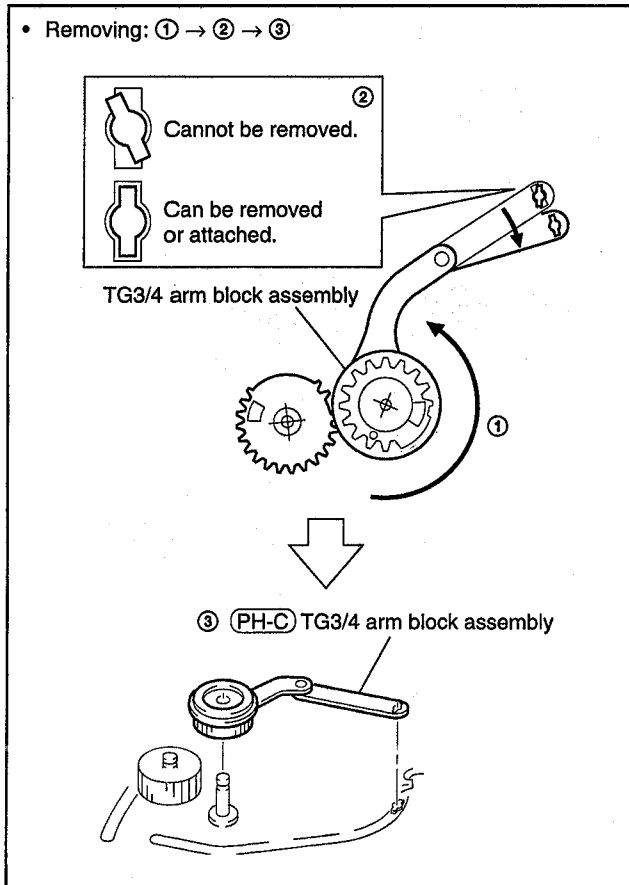


⑥. Rotary switch, TC gear and TG5/6 retainer.

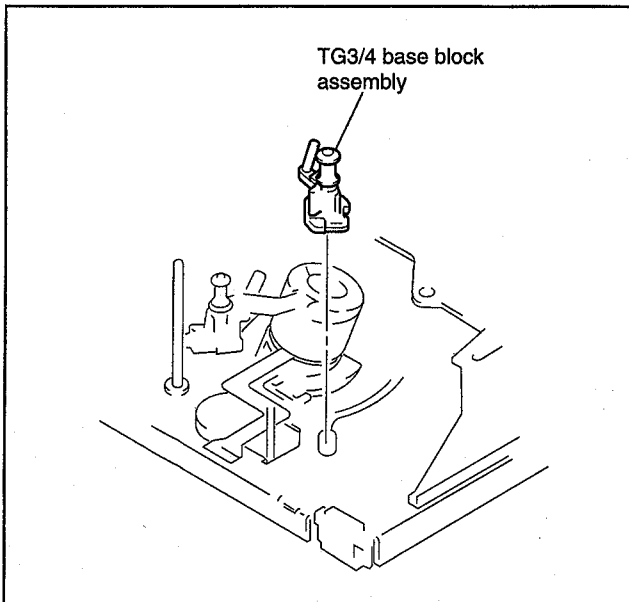


⑦. Set the **LOADING** position. (Refer to page 5-3)

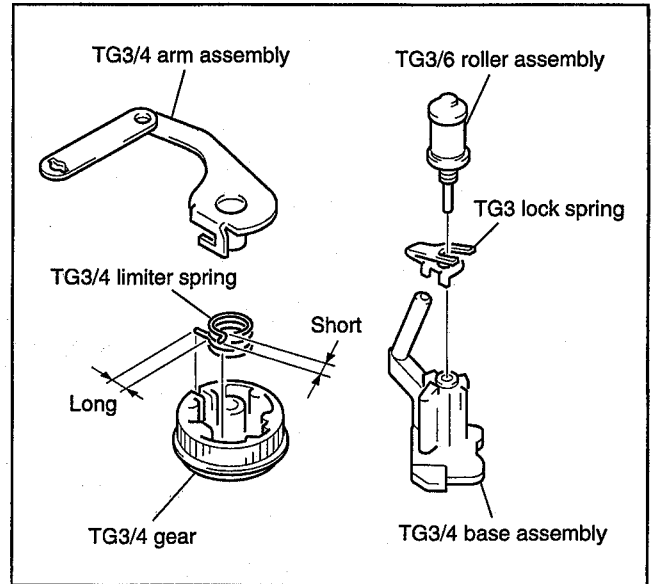
⑧. TG3/4 arm block assembly.



⑨. TG3/4 base block assembly.

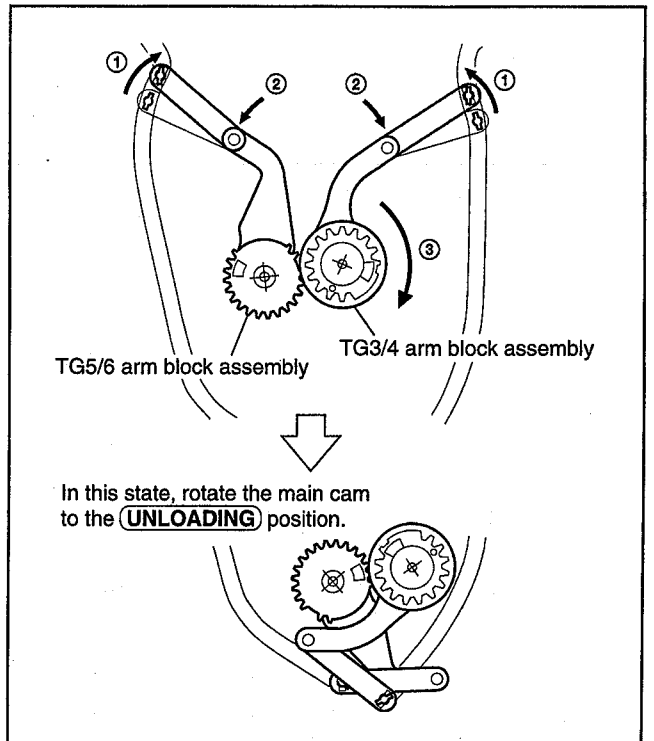


⑩. TG3/4 arm assembly, TG3/4 limiter spring, TG3/4 gear, TG3/6 roller assembly, TG3 lock spring and TG3/4 base assembly.



## 2. Attaching

- ①. Set the **LOADING** position. (Refer to page 5-3)
- ②. TG3/4 arm assembly, TG3/4 limiter spring, TG3/4 gear, TG3/6 roller assembly, TG3 lock spring and TG3/4 base assembly.
- ③. TG3/4 base block assembly.
- ④. TG3/4 arm block assembly.



- ⑤. Attach the parts in the order of ⑥ → ⑤ → ④ → ③ → ②.
- ⑥. Adjust them according to the flowchart (START-3) on page 5-43.



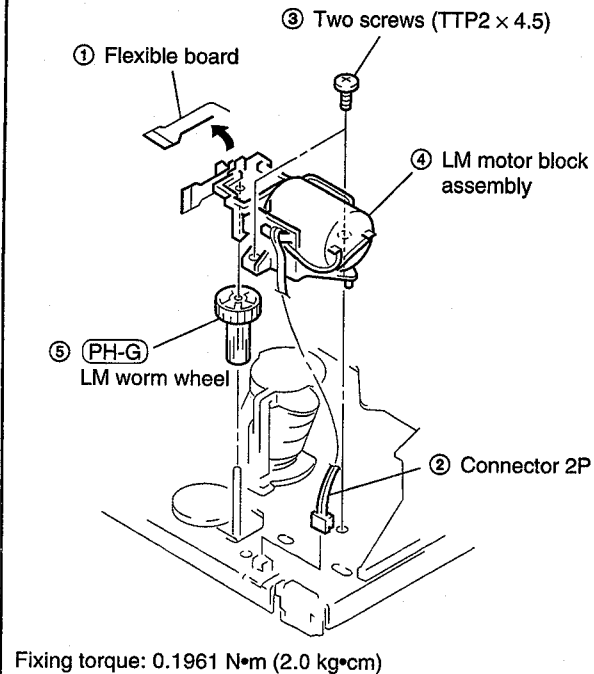
## 5-27. TG5/6 ARM BLOCK ASSEMBLY (TG5/6 ARM ASSEMBLY, TG5/6 LIMITER SPRING AND TG5/6 GEAR), TG5/6 BASE BLOCK ASSEMBLY (TG5/6 BASE ASSEMBLY)

### 1. Removing

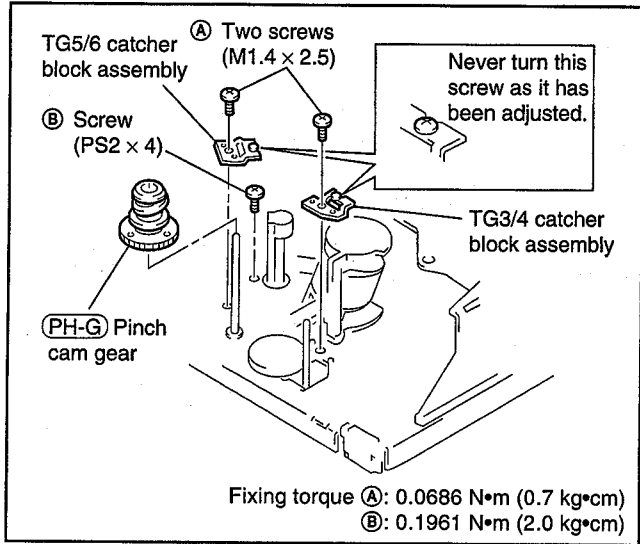
① Set the **UNLOADING** position. (Refer to page 5-3)

② LM motor block assembly and LM worm wheel.

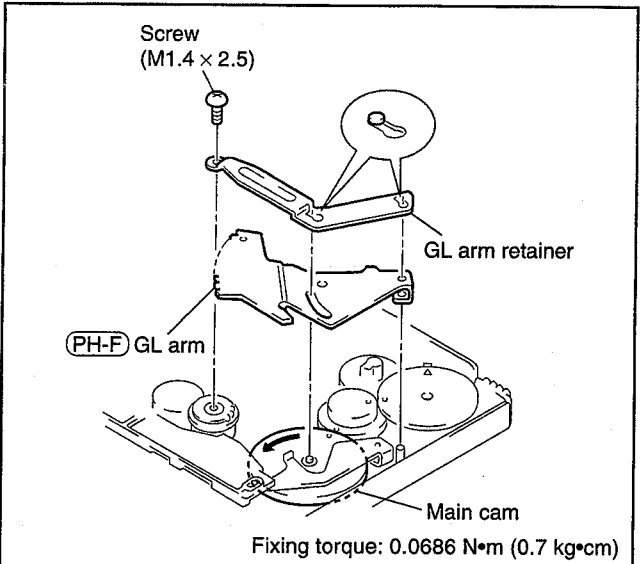
- Removing: ① → ② → ③ → ④ → ⑤
- Attaching : ⑤ → ④ → ③ → ② → ①



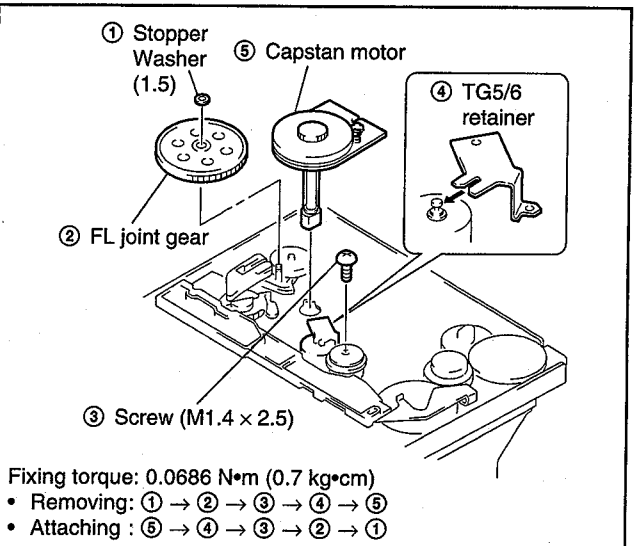
④ TG3/4, TG5/6 catcher block assembly, screw of capstan motor and pinch cam gear.



⑤ GL arm retainer and GL arm.



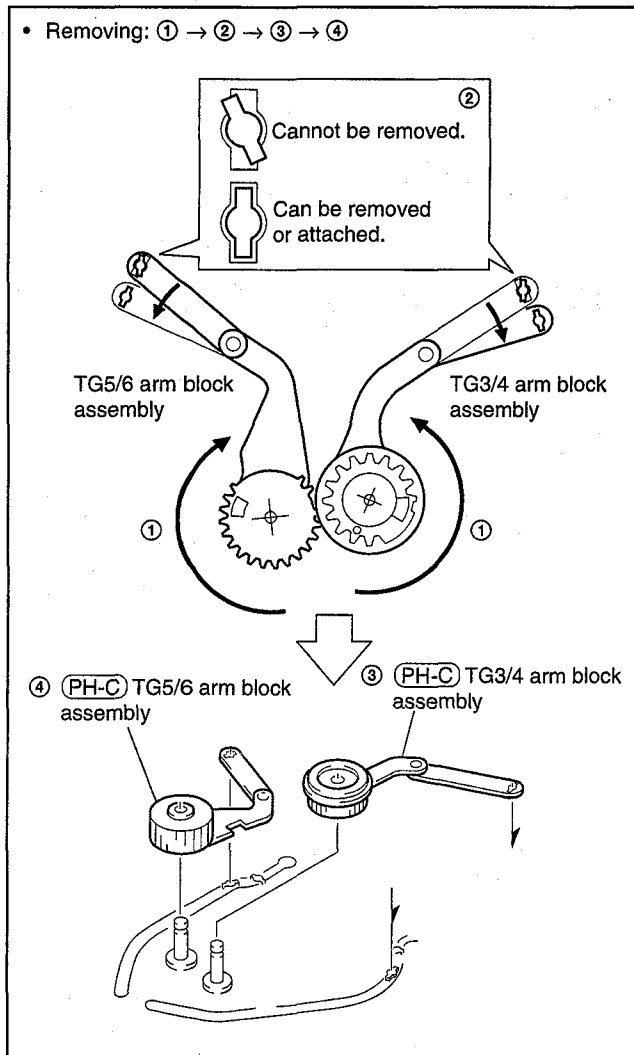
⑥ FL joint gear, capstan motor and TG5/6 retainer.



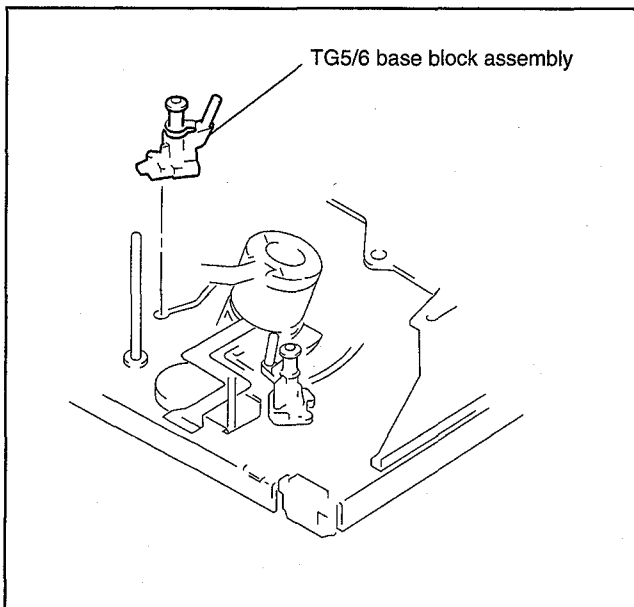
⑦. Set the **LOADING** position. (Refer to page 5-3)

⑧. TG3/4 arm block assembly and TG5/6 arm block assembly.

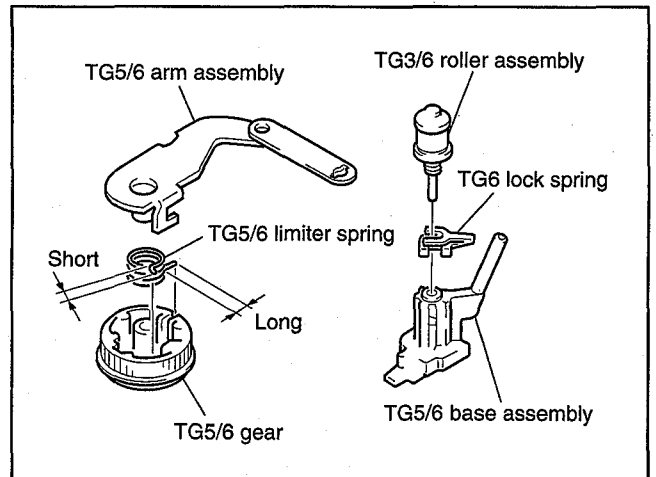
• Removing: ① → ② → ③ → ④



⑨. TG5/6 base block assembly.



⑩. TG5/6 arm assembly, TG5/6 limiter spring, TG5/6 gear, TG3/6 roller assembly, TG6 lock spring and TG5/6 base assembly.



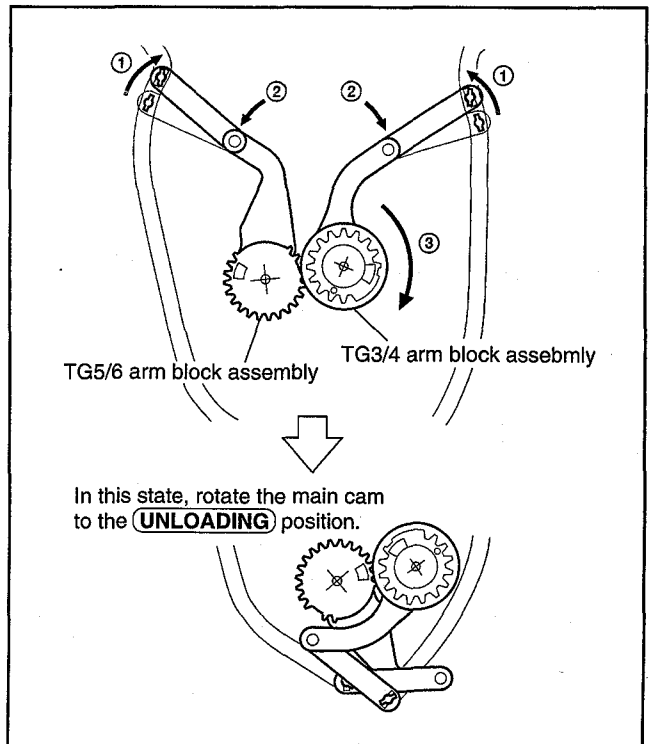
## 2. Attaching

①. Set the **LOADING** position. (Refer to page 5-3)

②. TG5/6 arm assembly, TG5/6 limiter spring, TG5/6 gear, TG3/6 roller assembly, TG6 lock spring and TG5/6 base assembly.

③. TG5/6 base block assembly.

④. TG3/4 arm block assembly and TG5/6 arm block assembly.

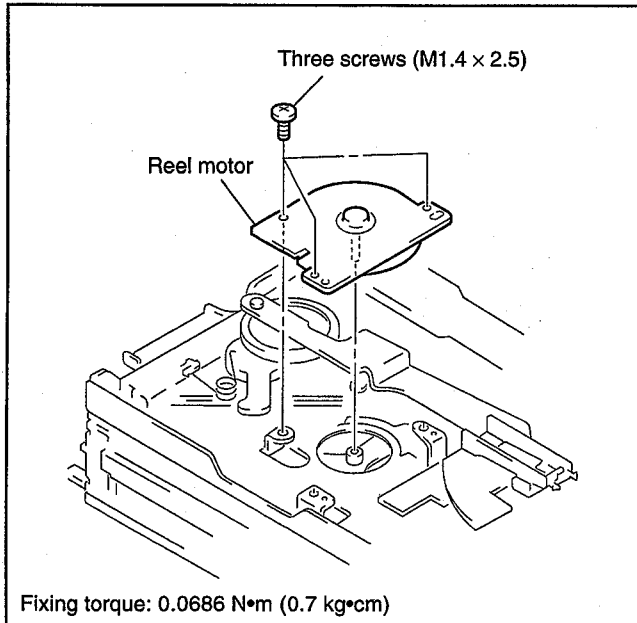


⑤. Attach the parts in the order of ⑥ → ⑤ → ④ → ③ → ②.

⑥. Adjust them according to the flowchart (START-3) on page 5-43.

## 5-28. REEL MOTOR

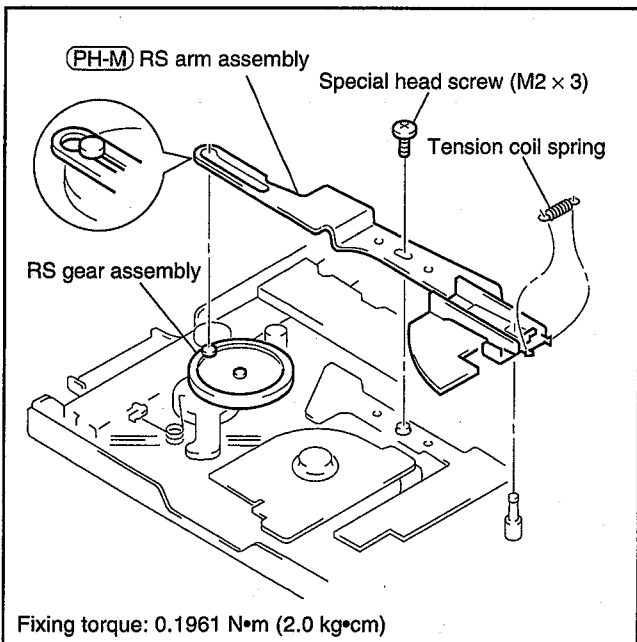
### • Removing/Attaching



## 5-29. RS ARM ASSEMBLY

### 1. Removing

- ①. Set the (S/L cassette) position. (Refer to page 5-2)
- ②. RS arm assembly.



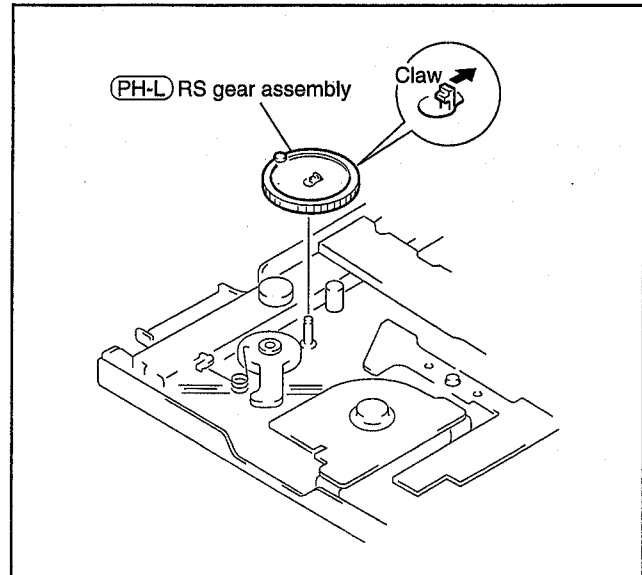
### 2. Attaching

- Attach the parts in the order of ① → ②.

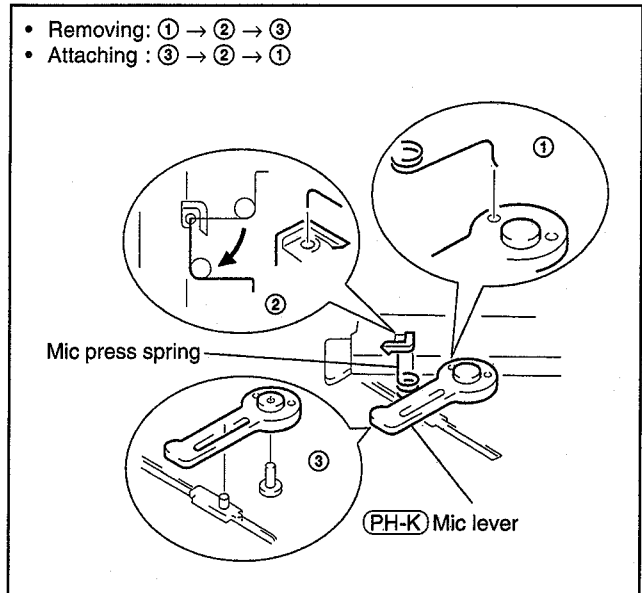
## 5-30. RS GEAR ASSEMBLY, MIC PRESS SPRING AND MIC LEVER

### 1. Removing

- ①. Set the (S/L cassette) position. (Refer to page 5-2)
- ②. RS arm assembly. (Refer to 5-29)
- ③. RS gear assembly.



- ④. Mic press spring and Mic lever.



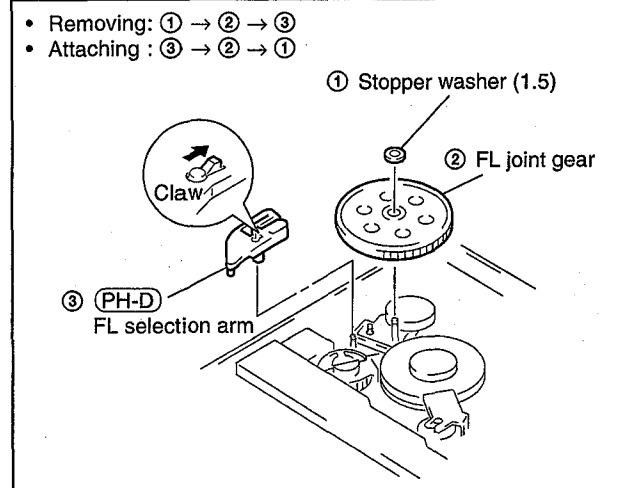
### 2. Attaching

- Attach the parts in the order of ① → ④ → ③ → ②.

## 5-31. RACK JOINT GEAR, RACK HOLDER, MIC HOLDER, RACK (LC) AND RACK (SC)

### 1. Removing

#### ①. FL joint gear, TG7 selection arm.

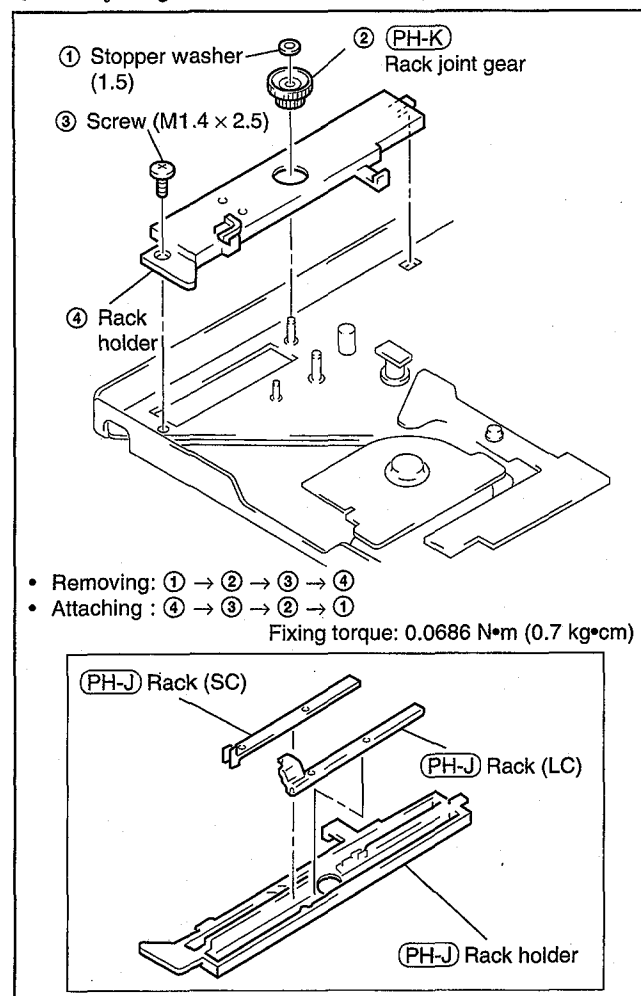


#### ②. Set the **(S/L cassette)** position. (Refer to page 5-2)

#### ③. RS arm assembly. (Refer to 5-29)

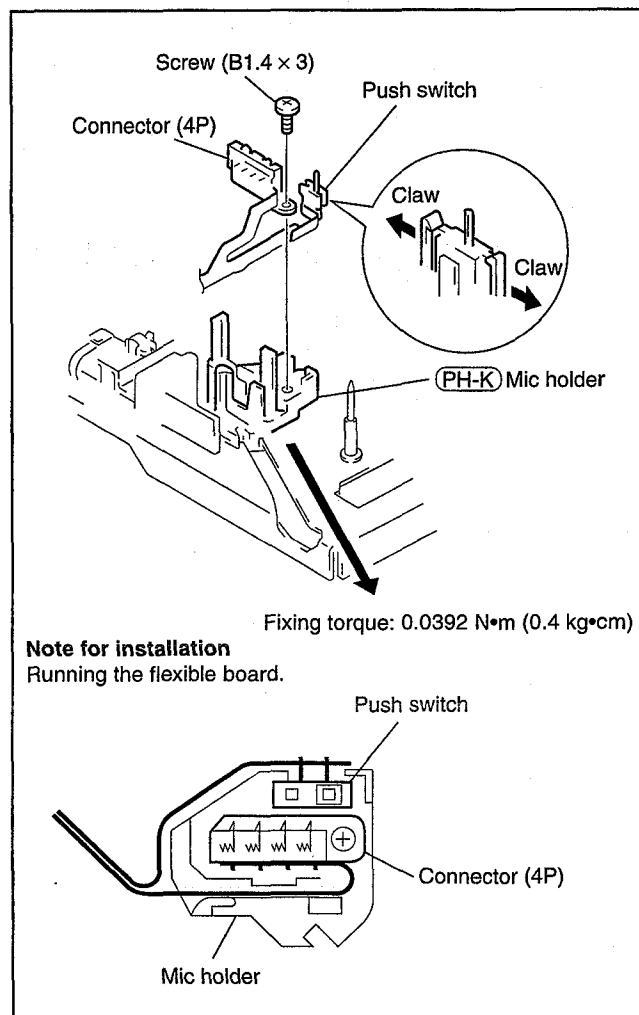
#### ④. RS gear assembly, Mic press spring and Mic lever. (Refer to 5-30)

#### ⑤. Rack joint gear, rack holder, rack (LC) and rack (SC).



#### ⑥. FL block assembly. (Refer to page 5-2)

#### ⑦. Push switch, Connector (4P), Mic holder.



### 2. Attaching

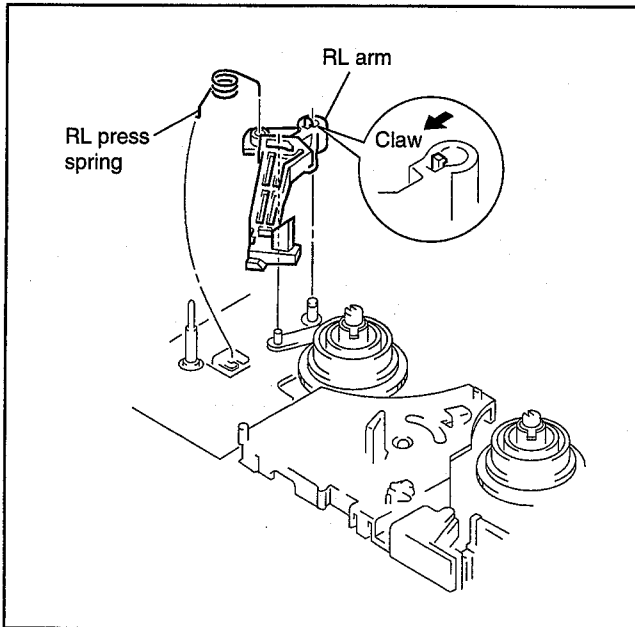
- Attach the parts in the order of ② → ⑦ → ⑥ → ⑤ → ④ → ③ → ①.

## 5-32. PLATE LINK ASSEMBLY

### 1. Removing

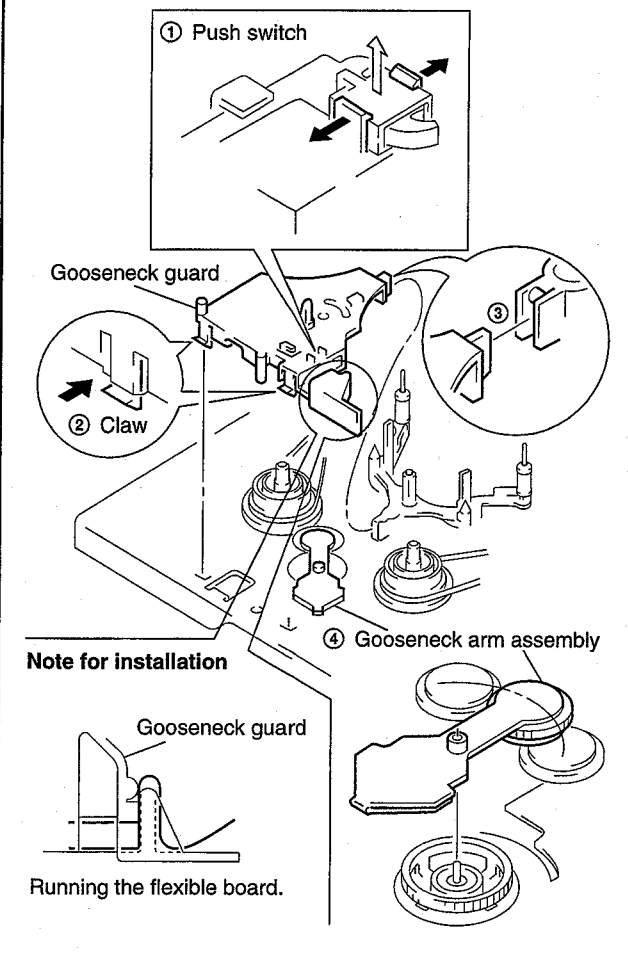
① Set the **L cassette** position. (Refer to page 5-2)

② RL arm.

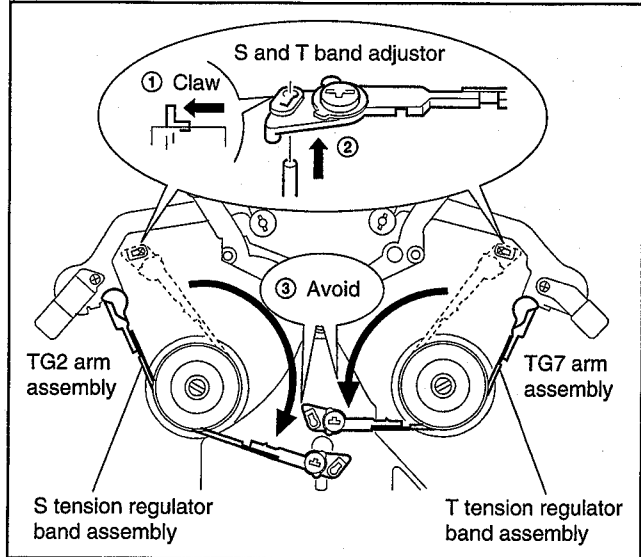


③ Gooseneck guard.

- Removing: ① → ② → ③ → ④
- Attaching : ④ → ③ → ② → ①

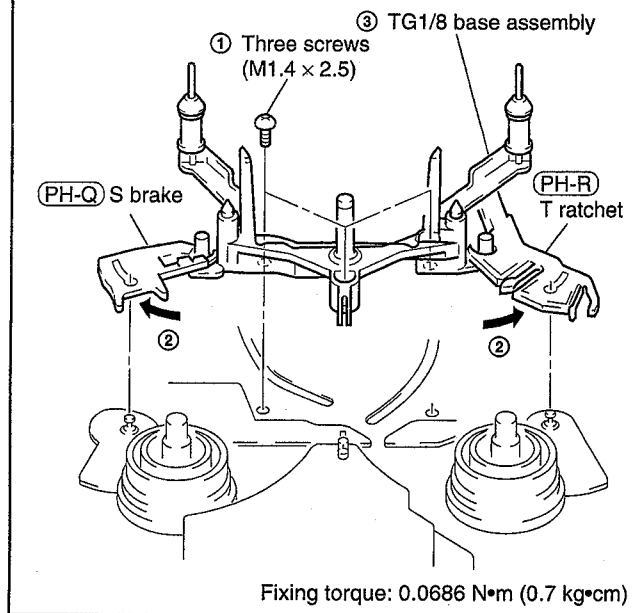


④ S and T band adjustor.

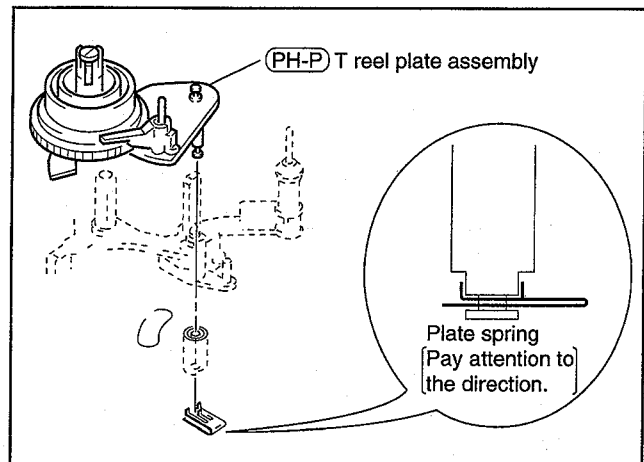


⑤ TG1/8 base assembly. (S brake and T ratchet)

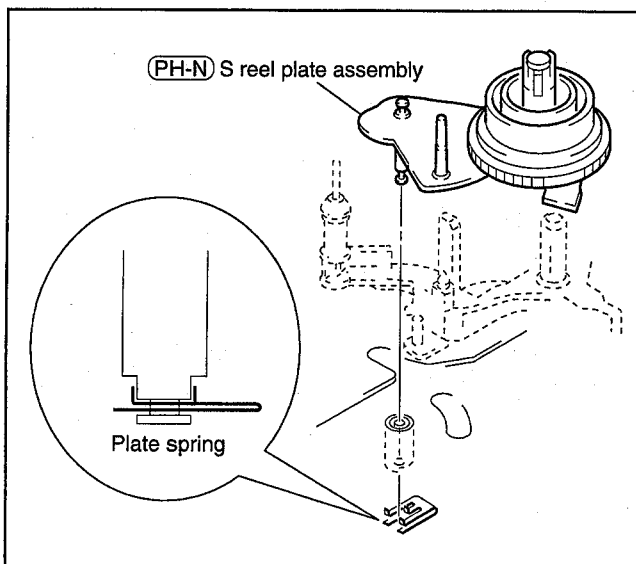
- Removing: ① → ② → ③
- Attaching : ② → ③ → ①



⑥ T reel plate assembly.

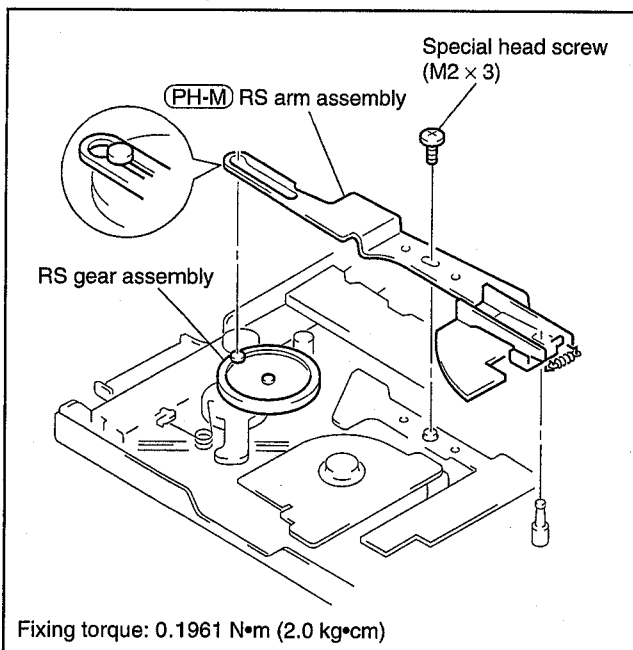


⑦. S reel plate assembly.

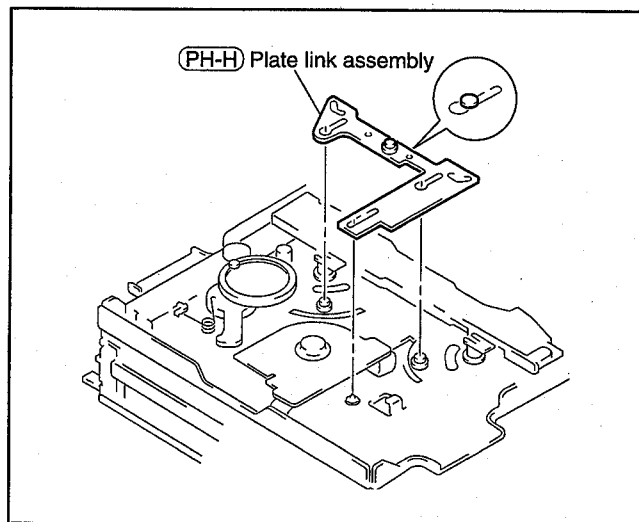


⑧. Set the **S/L cassette** position. (Refer to page 5-2)

⑨. RS arm assembly.



⑩. Plate link assembly.



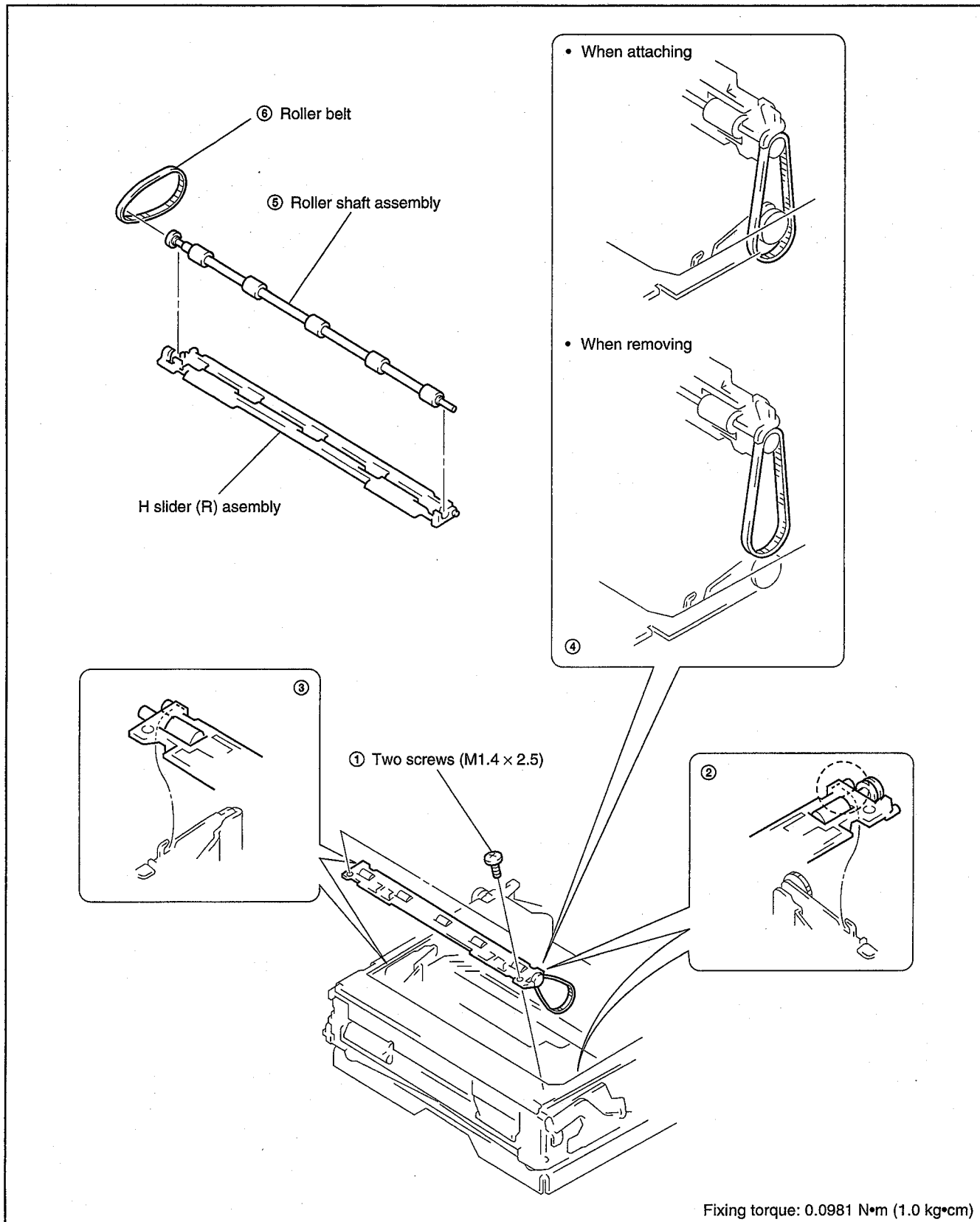
**2. Attaching**

- ①. Attach the parts in the order of ⑧ → ⑩ → ⑨ → ⑦ → ⑥ → ⑤ → ① → ④ → ③ → ②.
- ②. Adjust them according to the flowchart (START-1) on page 5-43.



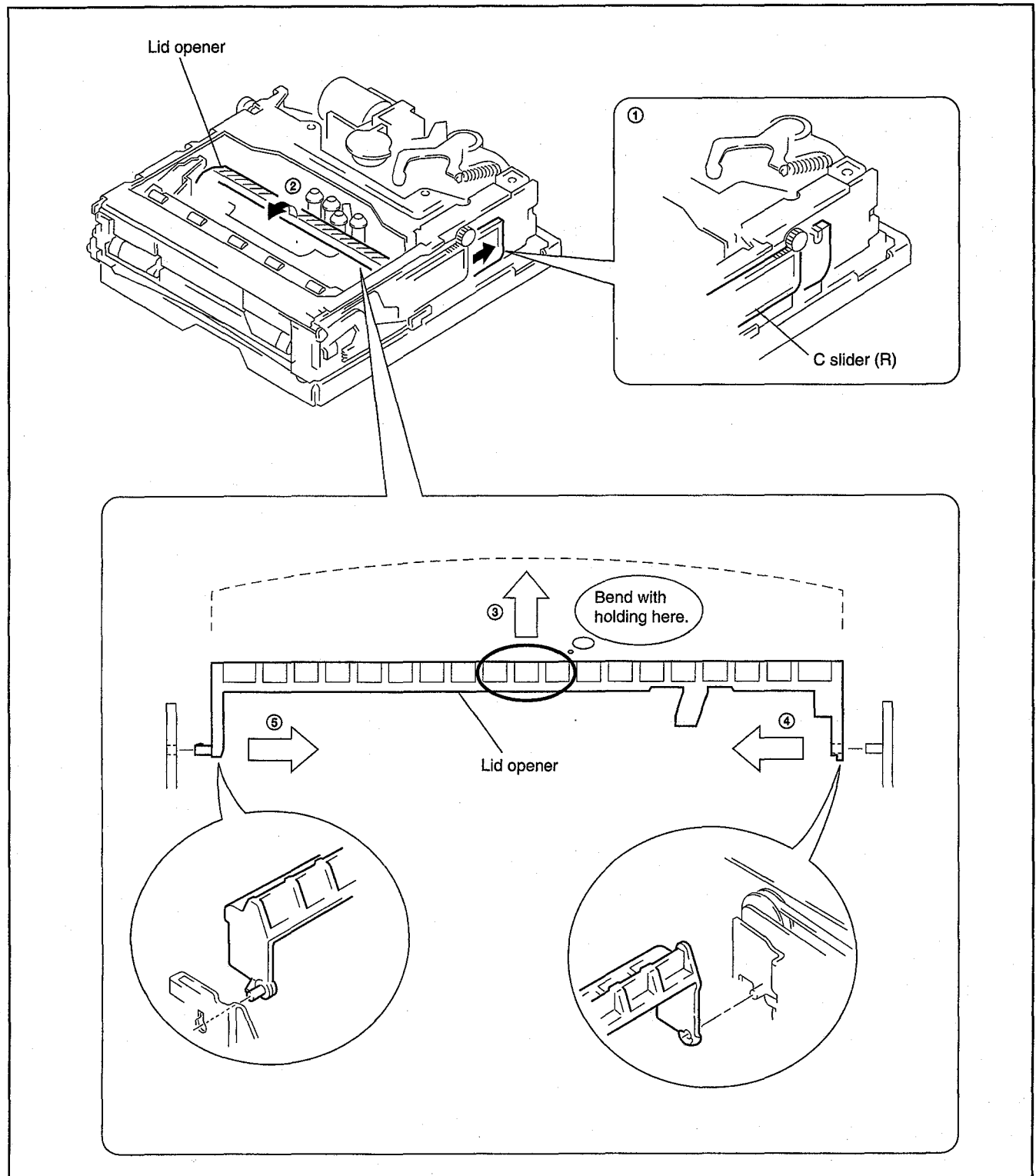
### 5-33. ROLLER SHAFT ASSEMBLY AND ROLLER BELT

#### • Removing/Attaching



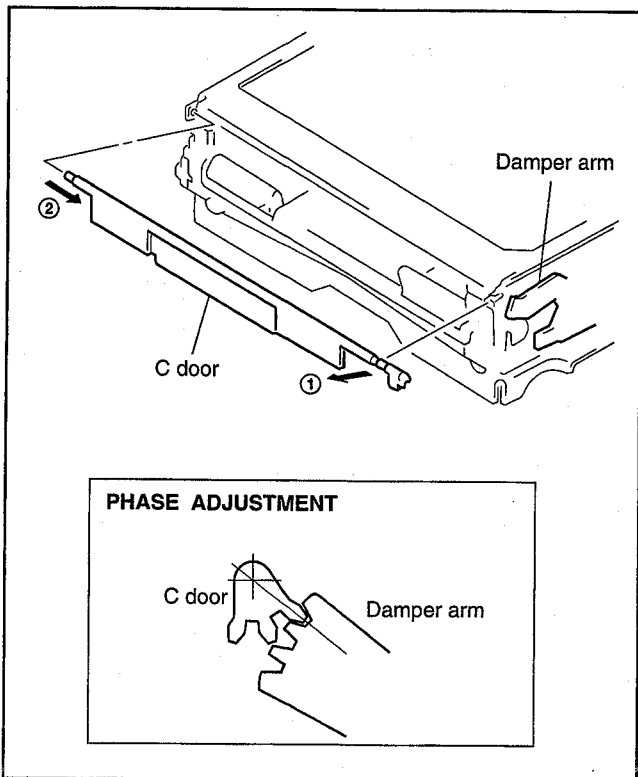
## 5-34. LID OPENER

### • Removing/Attaching



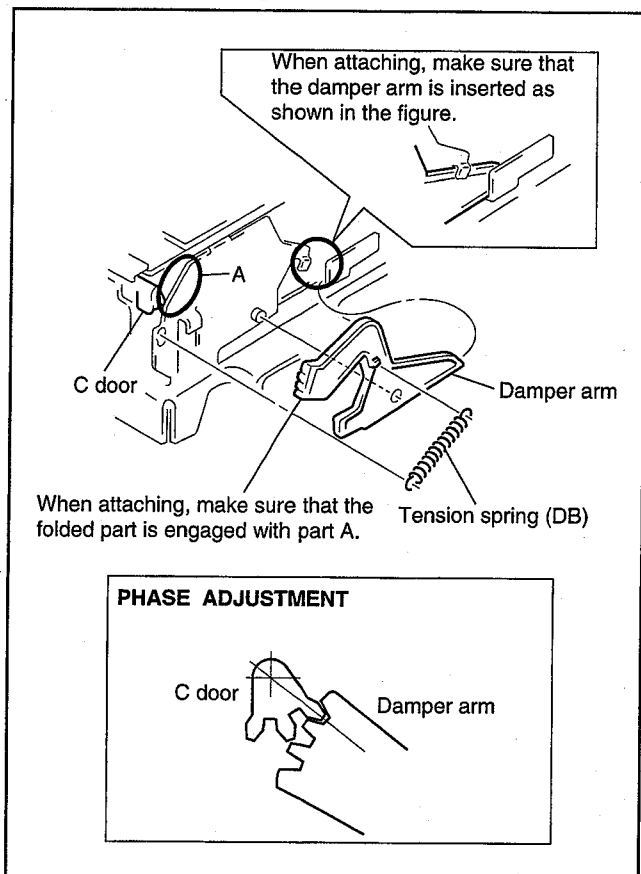
## 5-35. C DOOR

### • Removing/Attaching



## 5-36. DAMPER ARM AND TENSION SPRING (DB)

### • Removing/Attaching

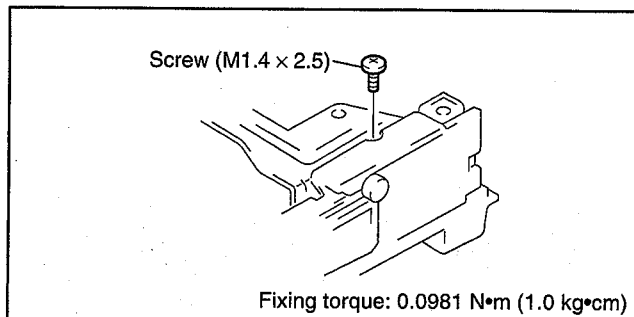


## 5-37. GEAR (A), GEAR (B) AND C WORM

### 1. Removing

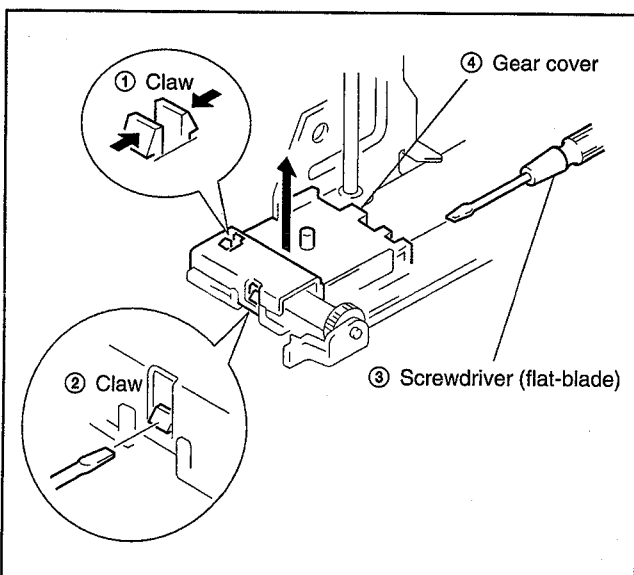
①. FL block assembly. (Refer to page 5-2)

②. Screw. (M1.4 × 2.5)

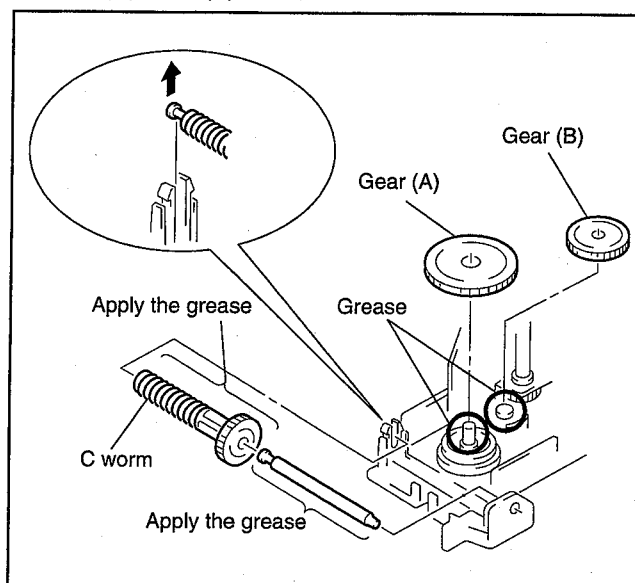


Fixing torque: 0.0981 N·m (1.0 kg·cm)

③. Gear cover.



④. Gear (A), Gear (B) and C worm.

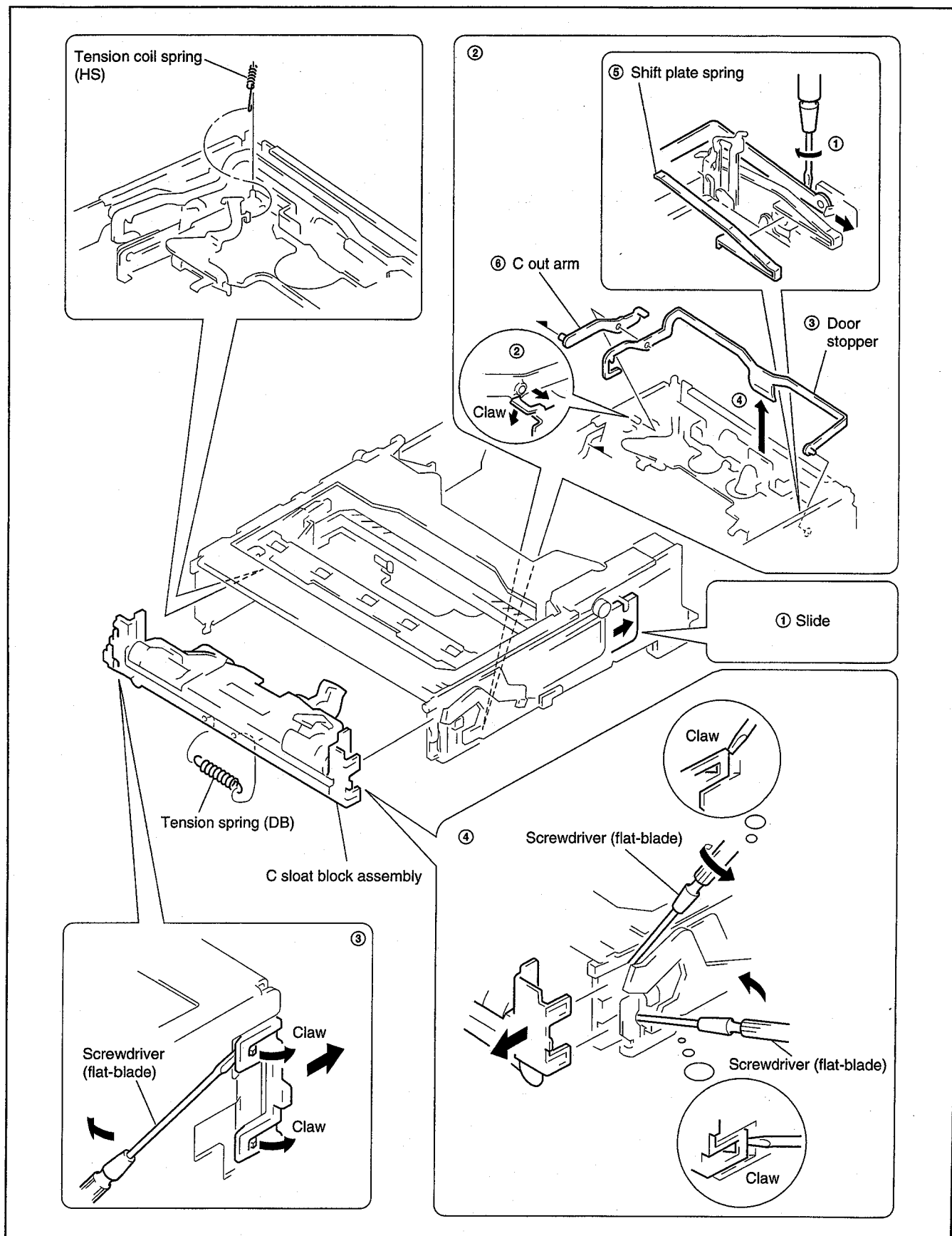


### 2. Attaching

• Attach the parts in the order of ④ → ③ → ② → ①.

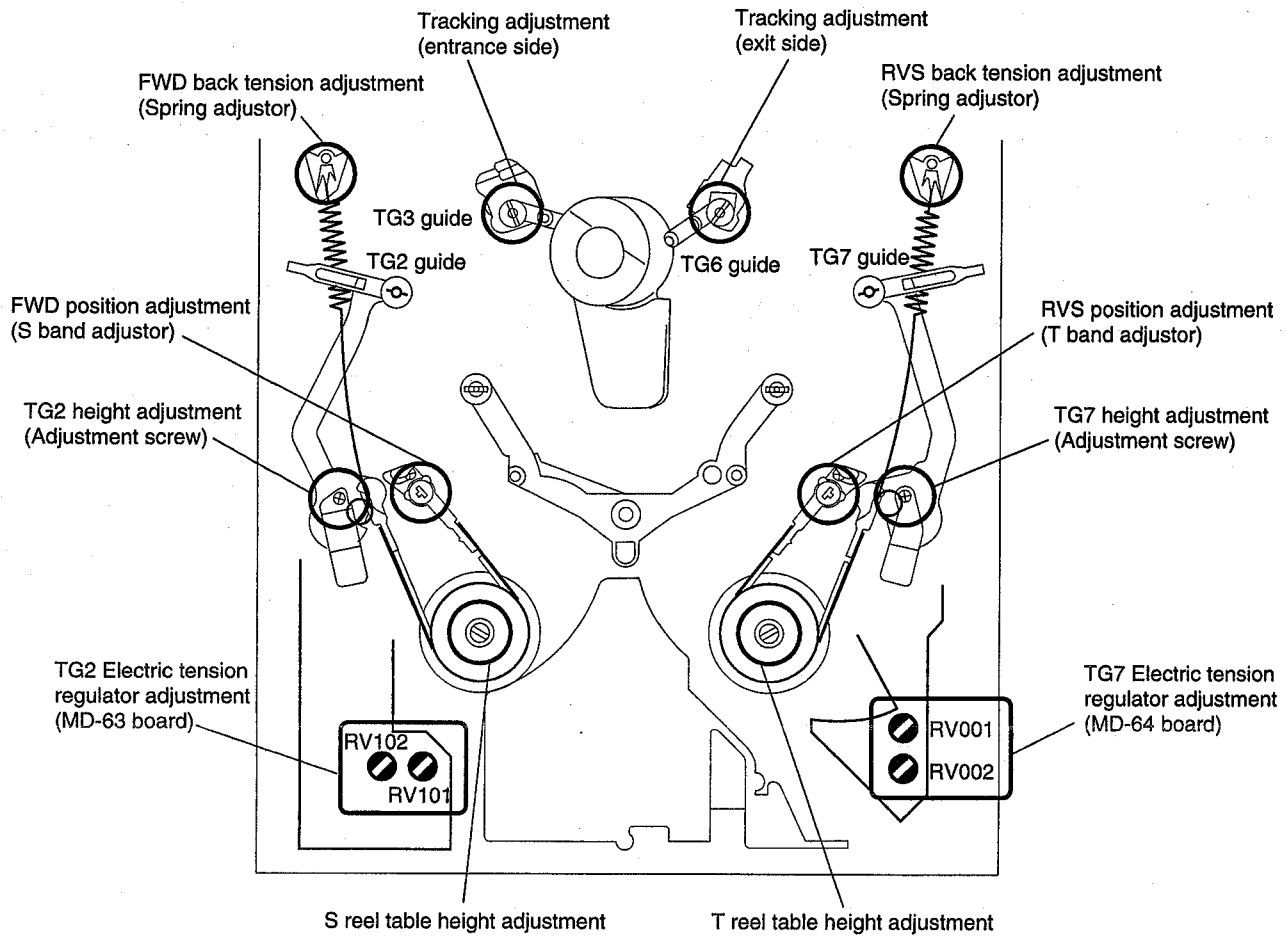
# **5-38. TENSION COIL SPRING (HS), TENSION SPRING (DB), SHIFT PLATE SPRING AND C SLOAT BLOCK ASSEMBLY**

- **Removing/Attaching** (Remove the FL block assembly. (Refer to page 5-2))

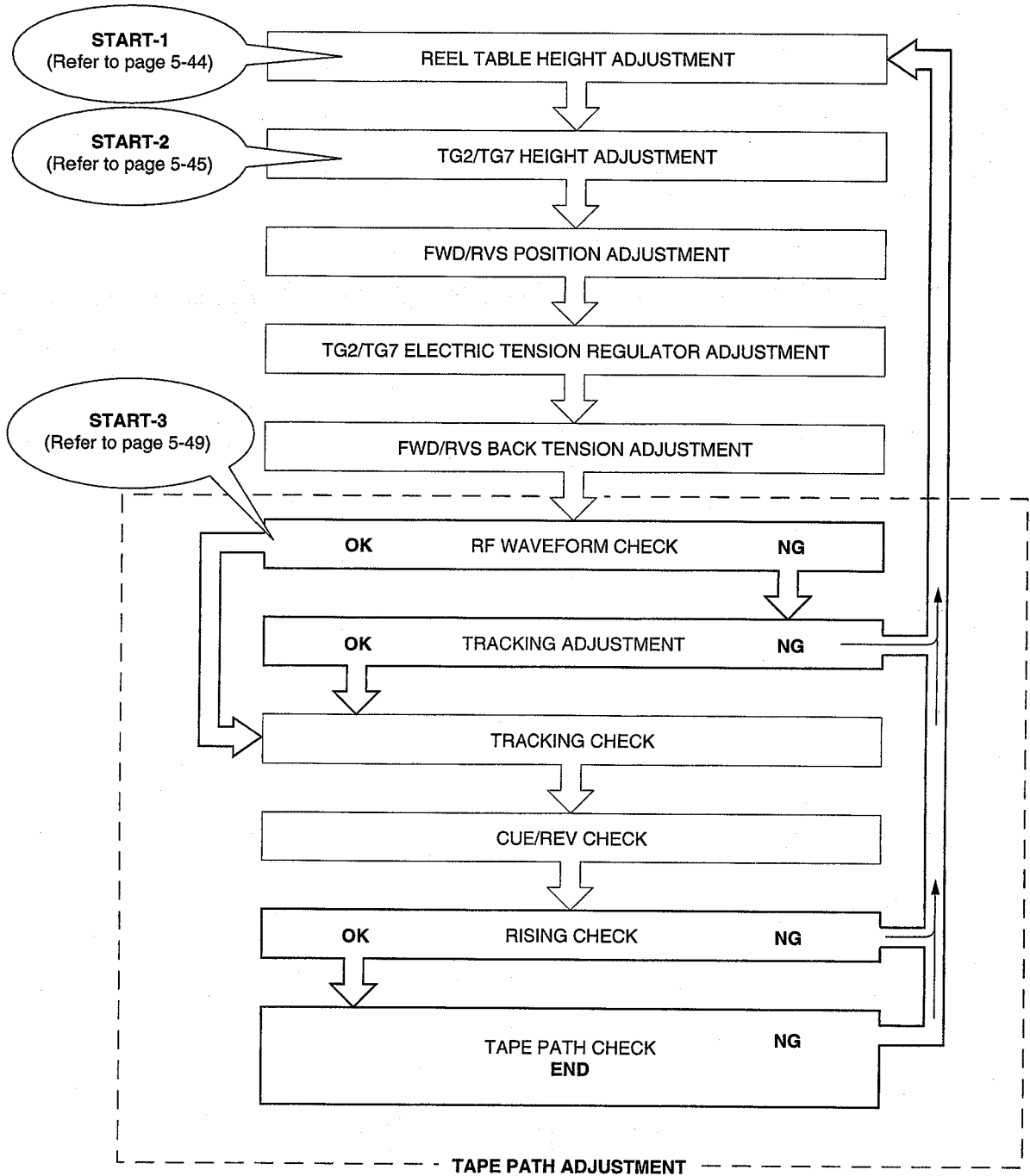


## 5-1-6. ADJUSTMENTS AND CHECKS

### 6-1. ADJUSTMENT POSITION



## 6-2. ADJUSTMENT ORDER





## 6-3. ADJUSTMENT AND CHECKING METHOD

### 6-3-1. REEL TABLE HEIGHT ADJUSTMENT

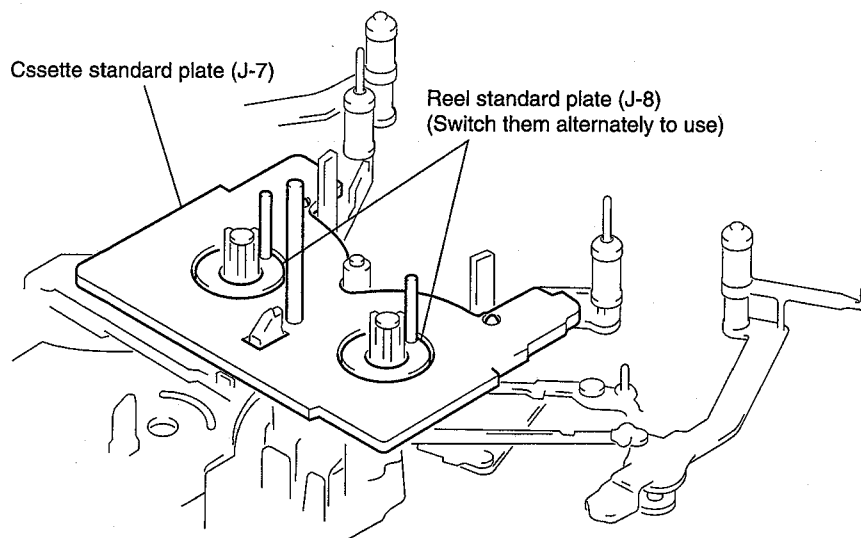
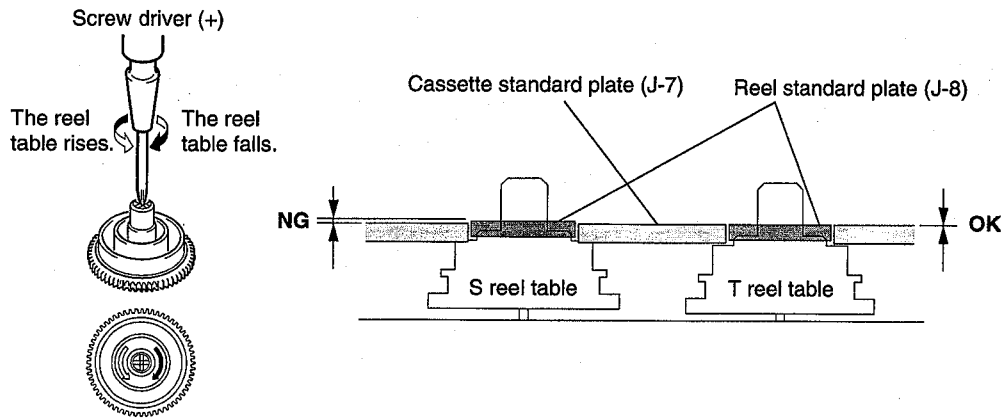
#### 1. Preparation before adjustment

FL block: Remove.

Position : **LOADING** / **S cassette**

Jig used : Cassette standard plate (J-7), Reel standard plate (J-8) and screwdriver (+)

#### 2. Adjusting



## 6-3-2. TG2/TG7 HEIGHT ADJUSTMENT

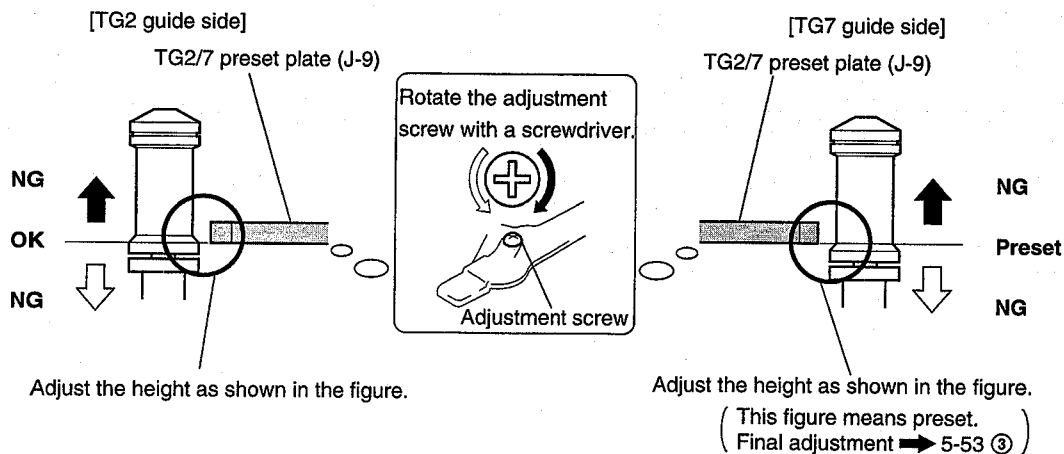
### 1. Preparation before adjustment

FL block: Remove.

Position : **LOADING** / **S cassette**

Jig used : Cassette standard plate (J-7), TG2/7 preset plate (J-9) and screwdriver  
(For attaching jigs, refer to page 5-5)

### 2. Adjusting



## 6-3-3. FWD/RVS POSITION ADJUSTMENT

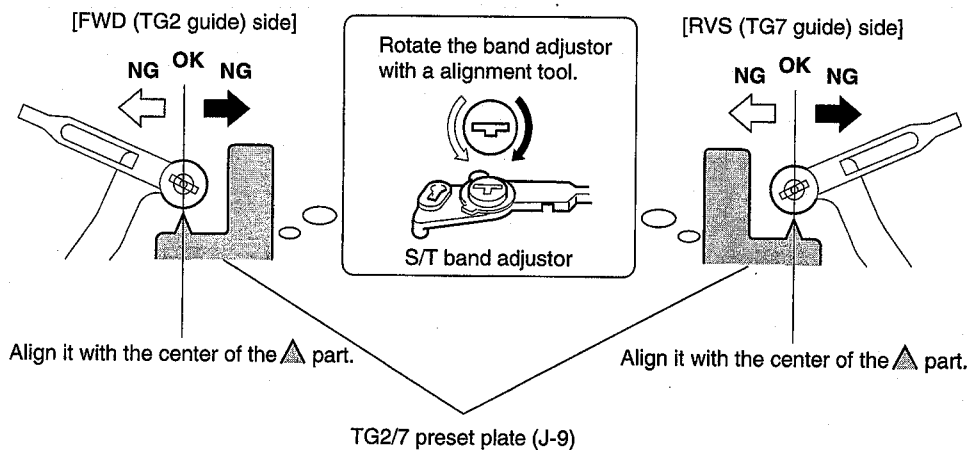
### 1. Preparation before adjustment

FL block: Remove.

Position : **LOADING** (The pinch roller should be stuck) / **S cassette**

Jig used : Cassette standard plate (J-7), TG2/7 preset plate (J-9) and screwdriver for tape path

### 2. Adjusting



## 6-3-4. TG2/TG7 ELECTRIC TENSION REGULATOR ADJUSTMENT

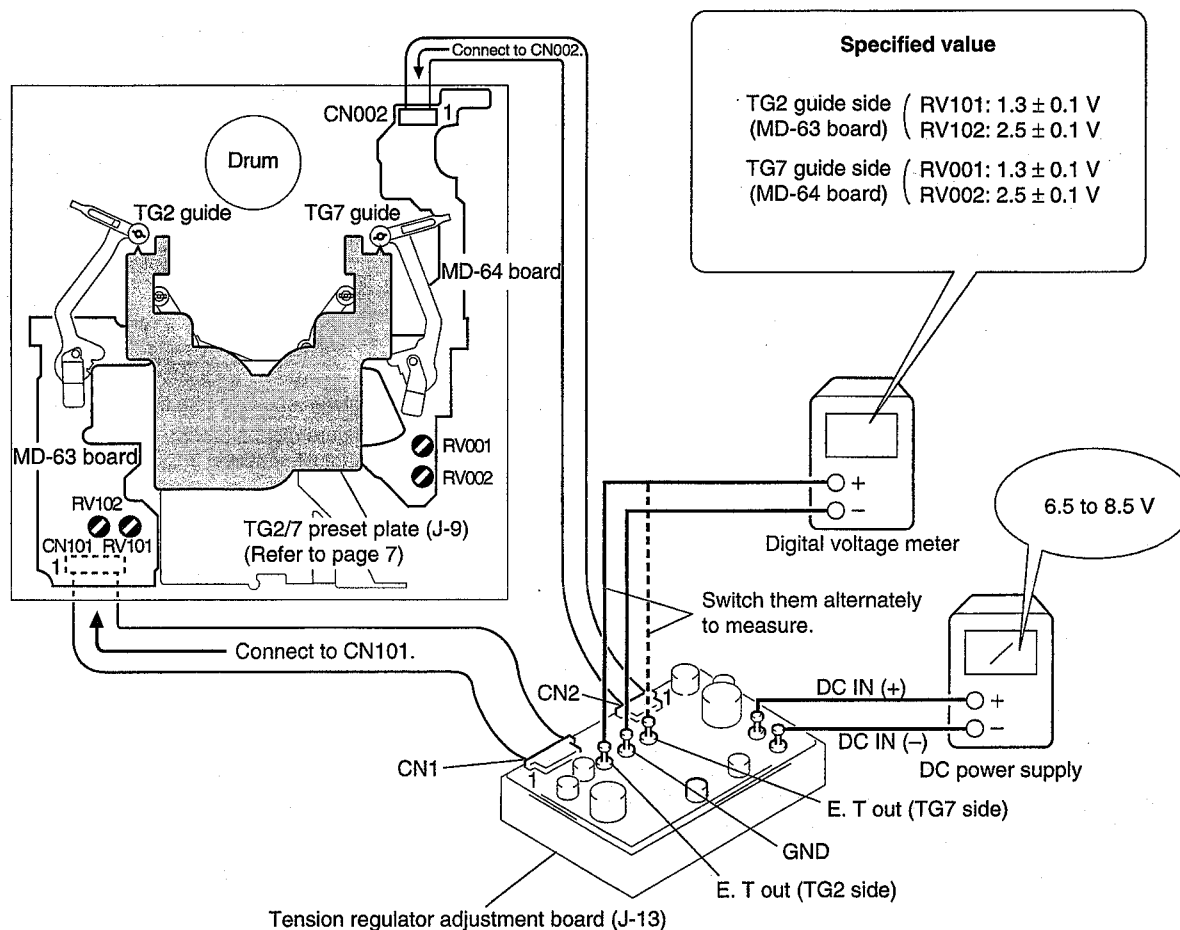
### 1. Preparation before adjustment

FL block: Remove.

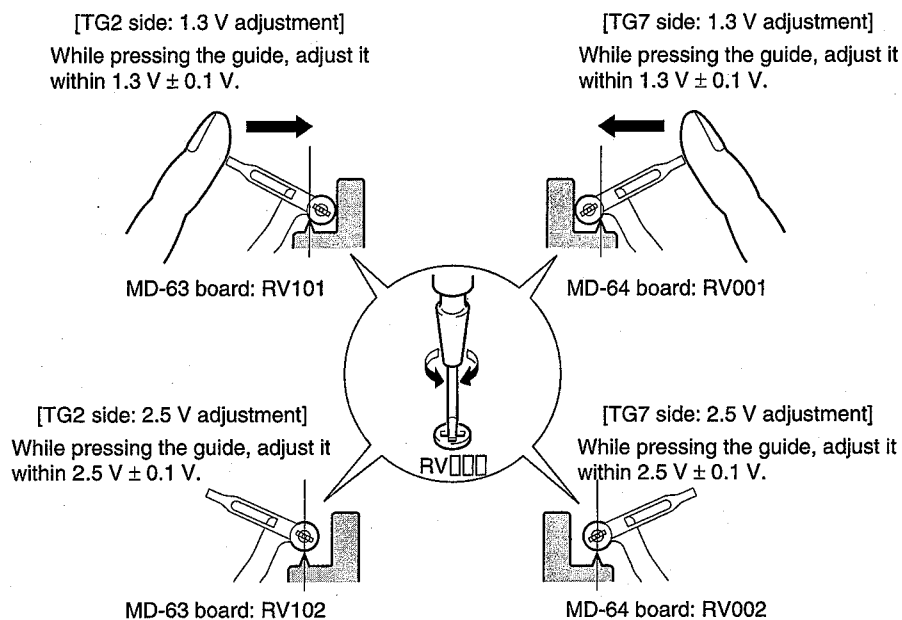
Position : **LOADING** (The pinch roller should be stuck) / **S cassette**

Jig used : Cassette standard plate (J-7), TG2/7 preset plate (J-9) and screwdriver for tape path  
(For attaching jigs, refer to page 5-5)

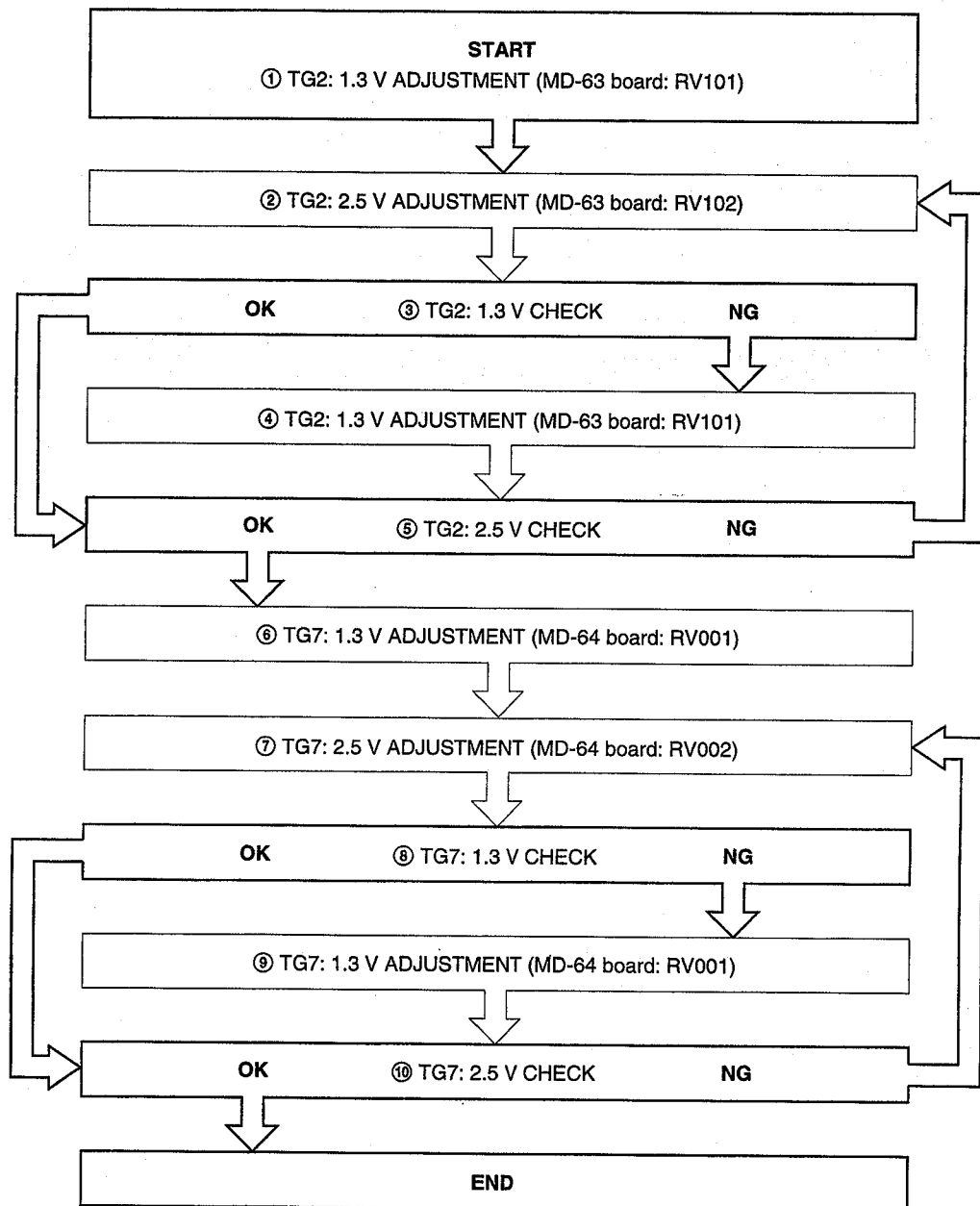
### 2. Connecting, setting, and adjusting methods



### 3. Adjusting



#### 4. Adjustment order



### 6-3-5. FWD/RVS BACK TENSION ADJUSTMENT

#### 1. Preparation before adjustment

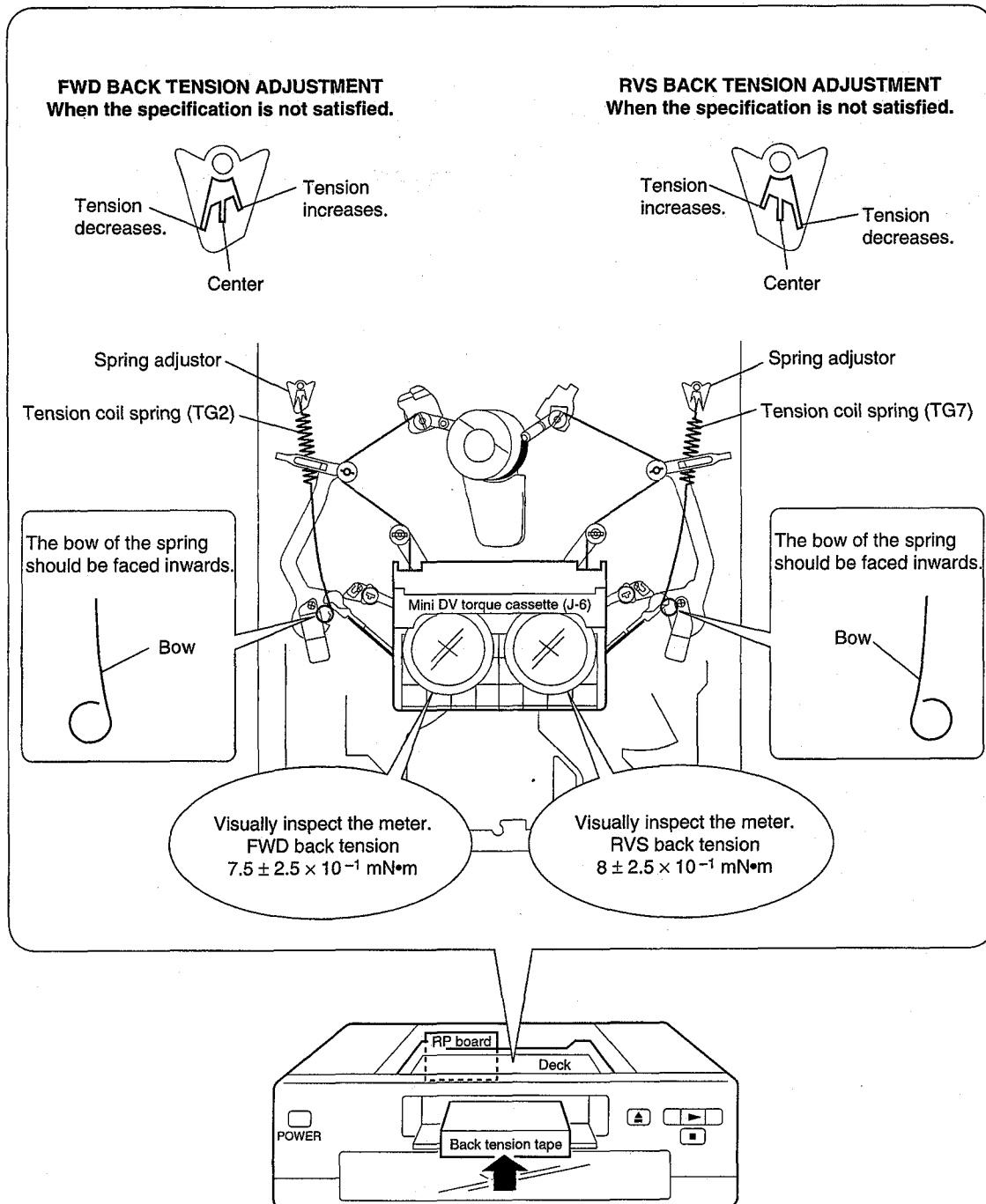
Mechanism deck: Install to the unit.

Jig used : Mini DV torque cassette (J-6), pinset (For change the hooking of spring)

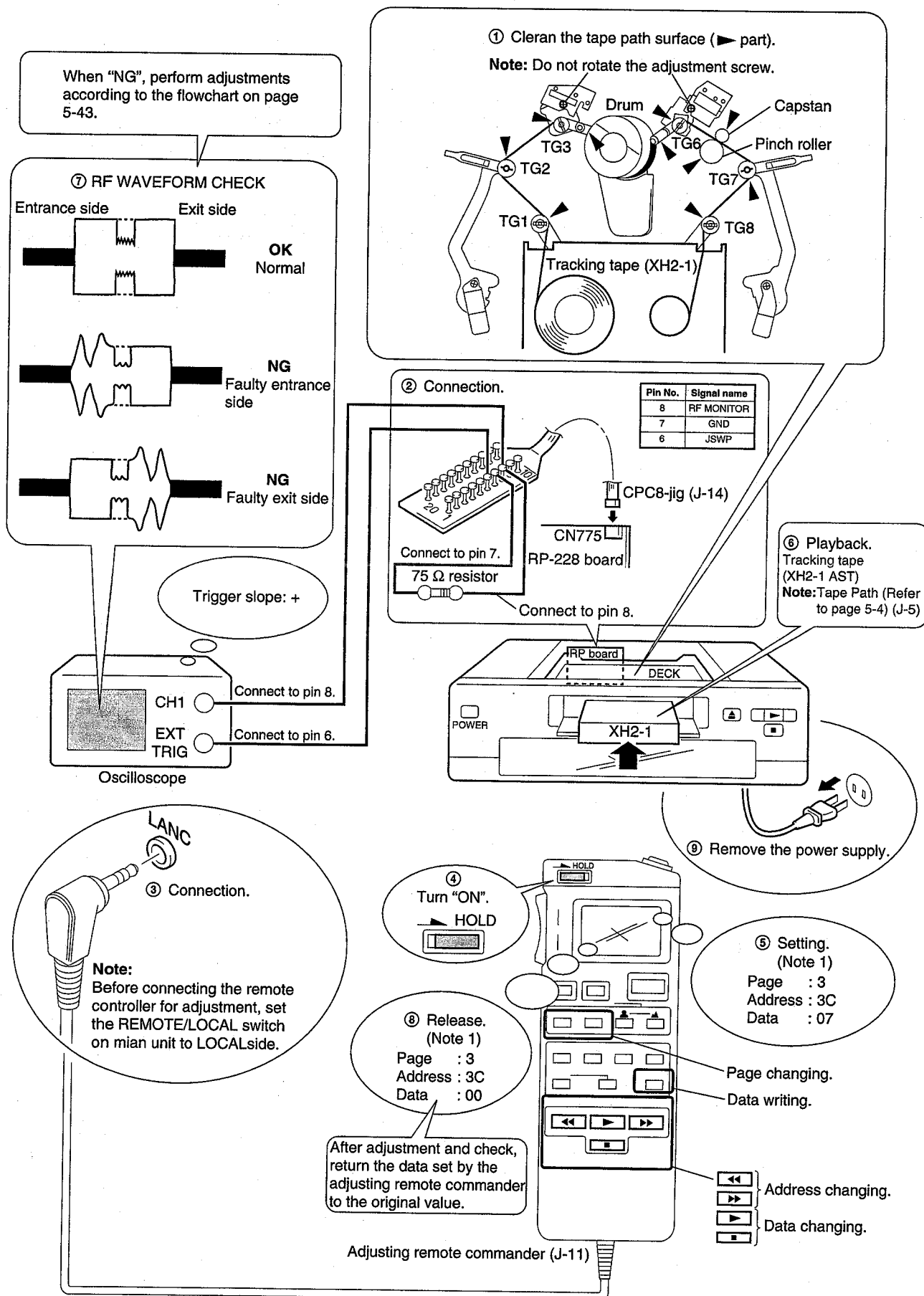
#### 2. Adjusting

**Note:** At the FWD (TG2) side, measure the Mini DV torque cassette (J-6) in the FWD mode.

At the RVS (TG7) side, measure the Mini DV torque cassette (J-6) in the RVS mode.

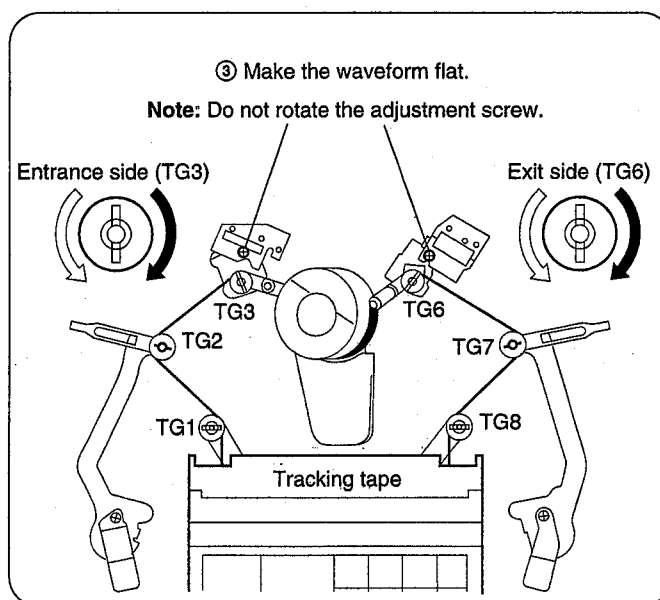
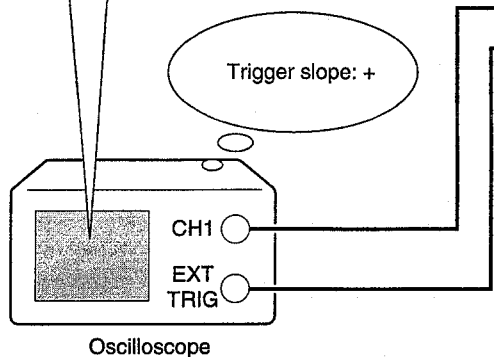
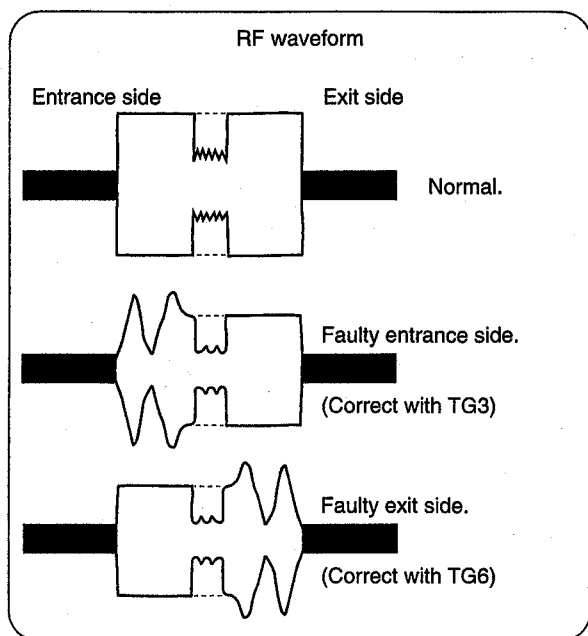


## 6-3-6. ADJUSTMENT PREPARATIONS AND RF WAVEFORM CHECK



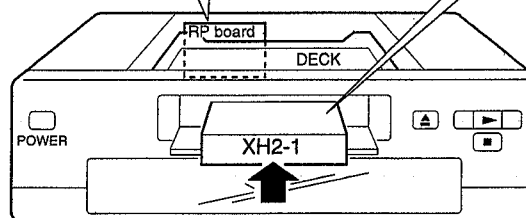


## 6-3-7. TRACKING ADJUSTMENT

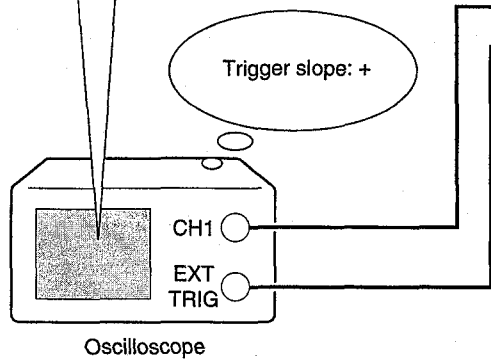
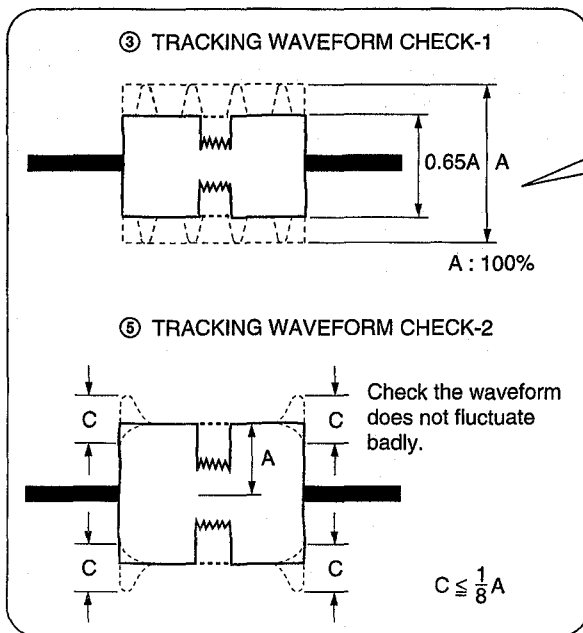


**① Connection.**  
Refer to ② Connection of 6-3-6. Adjustment preparations.

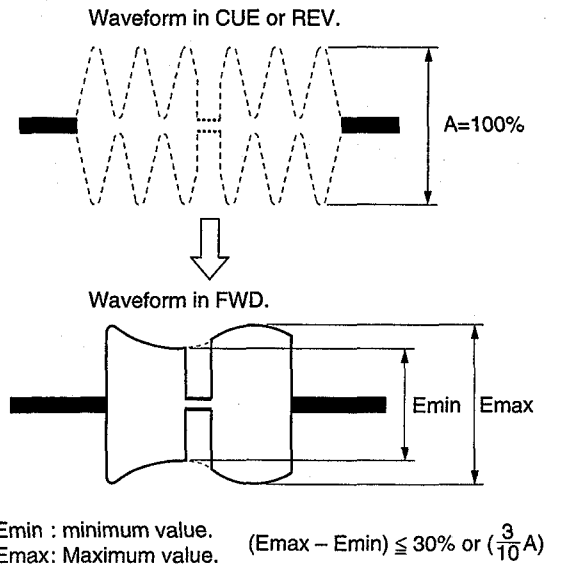
**② Playback.**  
Tracking tape (XH2-1 AST)  
**Note:** Tape Path (Refer to page 5-4) (J-5)



## 6-3-8. TRACKING CHECK

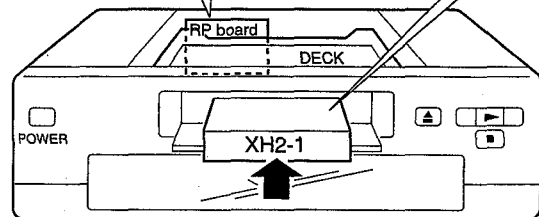


- ④ When the waveform's amplitude of CUE (or REV) is  $A$  ( $\approx 100\%$ ), check the difference between the minimum amplitude ( $E_{min}$ ) and the maximum amplitude ( $E_{max}$ ) for FWD is 30% or less.



- ① Connection.  
Refer to ② Connection of 6-3-6. Adjustment preparations.

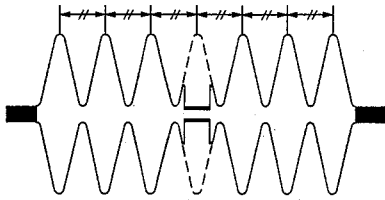
- ② Playback.  
Tracking tape (XH2-1 AST)  
**Note:** Tape Path (Refer to page 5-4) (J-5)



### 6-3-9. CUE AND REV CHECK

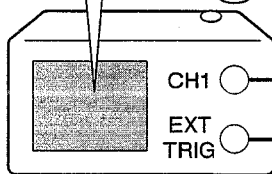
Waveform in CUE or REV.

OK: The distance between peaks should be equal.



NG: The distance between peaks is not equal.

Trigger slope: +



Oscilloscope

③ Check the waveform in the **CUE** mode. (see the left figure)

④ Check the waveform in the **REV** mode. (see the left figure)

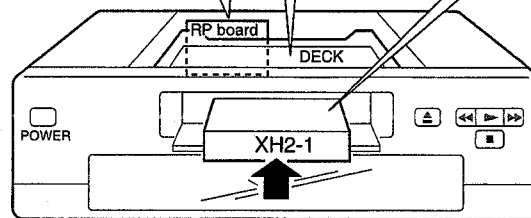
If ③ or ④ is "NG", perform "6-3-7. TRACKING ADJUSTMENT" again.

① Connection.

Refer to ② Connection of 6-3-6. Adjustment preparations.

② Playback.

Tracking tape (XH2-1 AST)  
**Note:** Tape Path (Refer to page 5-4) (J-5)

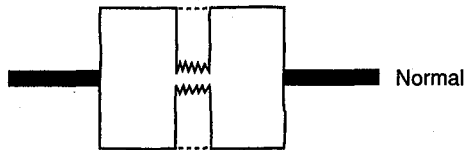


## 6-3-10. RISING CHECK

Repeat the rising Checks ④ to ⑥.

### ④ RISING CHECK-1

This waveform should rise within two seconds after the playback button is pressed.



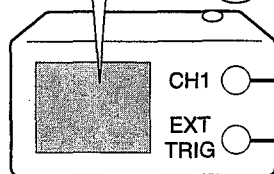
### ⑤ RISING CHECK-2

This waveform (waveform ④) after CUE or REV should rise within two seconds.

### ⑥ RISING CHECK-3

This waveform (waveform ④) should rise within two seconds after the playback button is pressed in the FF or REW mode.

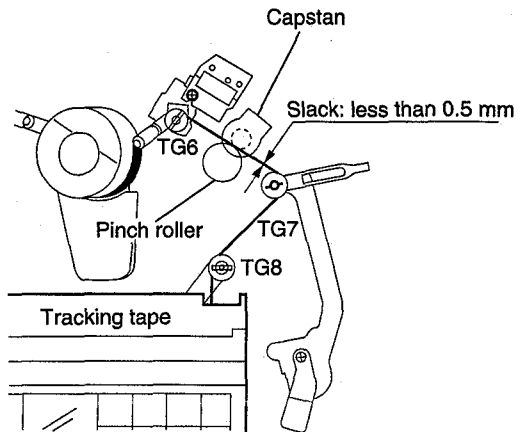
Trigger slope: +



Oscilloscope

### THE FINAL ADJUSTMENT OF TG7 HEIGHT

③ Check the slack of tape around the pinch roller during each rising check.  
If the slack is not corrected, adjust the height of TG7, and readjust electric tension regulator of TG7.  
(Adjust from the flowchart on page 5-47)

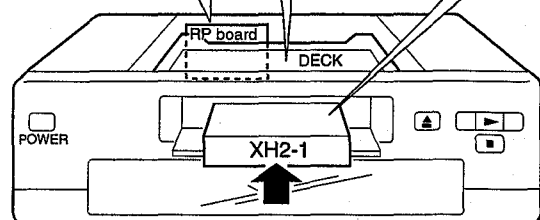


### ① Connection.

Refer to ② Connection of 6-3-6. Adjustment preparations.

### ② Playback.

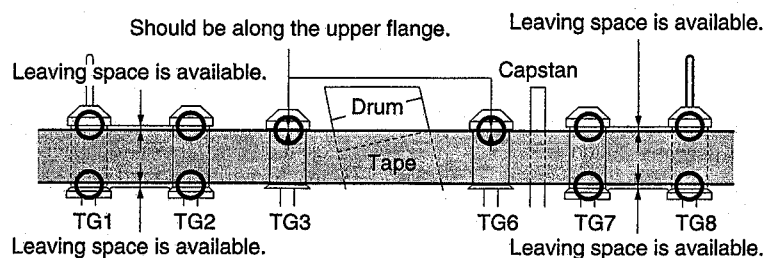
Tracking tape (XH2-1 AST)  
**Note:** Tape Path (Refer to page 5-4) (J-5)



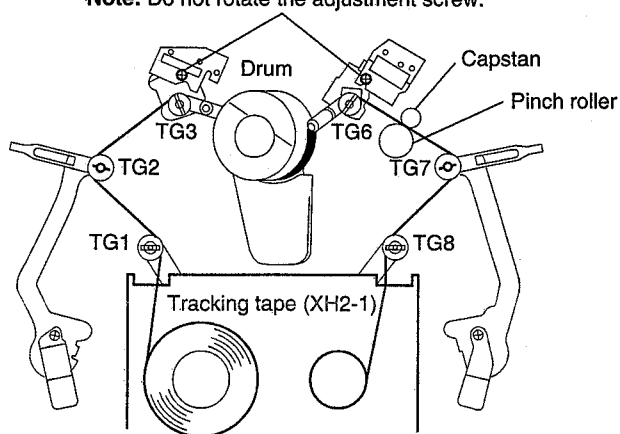
## 6-3-11. TAPE PATH CHECK

- ② It will be okayed, if there is no curls at the guides, capstan, etc. (○ part) in the **CUE** and **REV** mode.

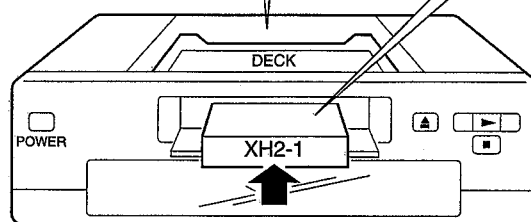
The following is ideal, but, it is satisfactory if the RF waveform is normal.



**Note:** Do not rotate the adjustment screw.



- ① Playback.  
Tracking tape  
(XH2-1 AST)  
**Note:** Tape Path (Refer  
to page 5-4) (J-5)



- ③ After adjustment and check, return the data set by the adjusting remote commander to the original value.

## 5-2. SERVICE MODE

### 5-2-1. ADJUSTING REMOTE COMMANDER

The adjusting remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjusting remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

#### 1. Used Adjustment Remote Commander

- 1) With the unit set in STANDBY mode, connect the adjusting remote commander to the remote (LANC) terminal.
- 2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).
- 3) Turn on the power with the ON/STANDBY switch of the unit. If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Fig. 5-2-1.

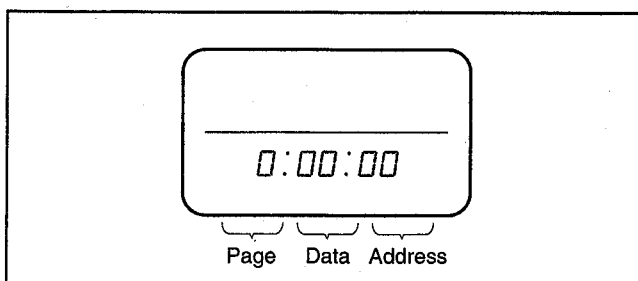


Fig. 5-2-1.

- 4) Operate the adjusting remote commander as follows.
  - Changing the page  
The page increases when the EDIT SEARCH + button is pressed, and decreases when the EDIT SEARCH - button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0 1 2 3 4 5 6 7 8 9 A B C D E F
LCD Display	0 1 2 3 4 5 6 7 8 9 A b c d e f
Decimal notation conversion value	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Table 5-2-1.

#### • Changing the address

The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.

#### • Changing the data (Data setting)

The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.

#### • Writing the adjustment data

The PAUSE button must be pressed to write the adjustment data (C page, D page and E page) in the nonvolatile memory. (The new adjustment data will not be recorded in the non-volatile memory if this step is not performed.)

#### 2. Precautions Upon Using The Adjusting Remote Commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

## 5-2-2. DATA PROCESSING

The calculation of the adjusting remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table 5-2-2. indicates the hexadecimal notation- the decimal notation, calculation table.

Hexadecimal notation-Decimal notation																
The lower digits of the hexadecimal notation The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
											(H)	(b)	(c)	(d)	(E)	(F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (H)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

**Note :** ( ) indicate the adjusting remote control unit display.

**(Example)** In the case that the adjusting remote control unit display are BD (bd).  
As the upper digit of the hexadecimal notation is B (b), and the lower digit is D (d), the intersection "189" of the ① and ② in the above table is the decimal notation to be calculated.

Table 5-2-2.



### 5-2-3. SERVICE MODE

#### 1. Emergence Memory Address

Page C	Addresses 30 to 3B
--------	--------------------

Address	Contents
30	EMG code when first error occurs
32	Upper: MSW code when shift starts when first error occurs Lower: MSW code when first error occurs
33	Lower: MSW code to be moved when first error occurs
34	EMG code when second error occurs
36	Upper: MSW code when shift starts when second error occurs Lower: MSW code when second error occurs
37	Lower: MSW code to be moved when second error occurs
38	EMG code when last error occurs
3A	Upper: MSW code when shift starts when last error occurs Lower: MSW code when last error occurs
3B	Lower: MSW code to be moved when last error occurs

When no error occurs in the unit, data 00 is written in the above addresses (30 to 3B). When the first error occurs in the unit, the data corresponding to the error is written in the first emergency address (30 to 33). In the same way, when the second error occurs, the data corresponding to the error is written in the second emergency address (34 to 37).

Finally, when the last error occurs, the data corresponding to the error is written in the last emergency address (38 to 3B). Consequently, addresses 30 to 3B are updated each time errors occur.

**Note 1:** After completing adjustments, be sure to rewrite the data of addresses 30 to 3B to 00.

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: C, address: 30, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 3) Select page: C, address: 31, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 4) Select page: C, address: 32, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 5) Select page: C, address: 33, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 6) Select page: C, address: 34, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 7) Select page: C, address: 35, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 8) Select page: C, address: 36, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 9) Select page: C, address: 37, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 10) Select page: C, address: 38, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 11) Select page: C, address: 39, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 12) Select page: C, address: 3A, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 13) Select page: C, address: 3B, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 14) Select page: 0, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.

#### 1-1. EMG Code (Emergency Code)

Codes corresponding to the errors which occur are written in addresses 30, 34, 38. The type of error indicated by the code are shown in the following table.

Code	Error Type
00	No error (Initial state)
10	Loading motor time-out during LOAD
11	Loading motor time-out during UNLOAD
20	Reel motor error
22	T reel error
23	S reel error
24	Swing error
32	Error during normal capstan rotation
33	Cassette compartment LOAD error
35	Cassette compartment UNLOAD error
40	FG error during drum start-up
42	FG error during normal drum rotation
50	DEW detection
52	Wet DEW detection
60	Electrical tension regulator error

## 5-3. VIDEO SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts on page 5-88.

### 3-1. PREPARATIONS BEFORE ADJUSTMENT

#### 3-1-1. Equipment Used

- 1) TV monitor
- 2) Oscilloscope with 2-phenomenon, 30 MHz band, and delay mode (Unless specified otherwise, use a 10 : 1 probe)
- 3) Frequency counter
- 4) Digital voltmeter
- 5) Audio generator
- 6) Audio level meter
- 7) Audio distortion meter
- 8) Audio attenuator
- 9) Pattern generator (with VIDEO OUTPUT terminal and external sync function)
- 10) Digital camera recorder  
NTSC : DCR-VX1000  
PAL : DCR-VX1000E
- 11) Vectorscope
- 12) Alignment tape
  - SW/OL reference (XH2-3)  
Parts code: 8-967-997-11
  - Audio operation check for NTSC (XH5-3)  
Parts code: 8-967-997-51
  - System operation check for NTSC (XH5-5)  
Parts code: 8-967-997-61
  - Audio operation check for PAL (XH5-3P)  
Parts code: 8-967-997-55
  - System operation check for PAL (XH5-5P)  
Parts code: 8-967-997-66
  - BIST check for NTSC (XH5-6)  
Parts code: 8-967-997-71
  - BIST check for PAL (XH5-6P)  
Parts code: 8-967-997-76
- 13) Adjusting remote control unit (J-6082-053-B)
- 14) Multi CPC-8 jig (J-6082-388-A). (CN775 of the RP-228 board)
- 15) Extension board
  - For extension between CN101 of the RP-228 board and CN412 of the JC-19 board.
  - For extension between CN102 of the RP-228 board and CN411 of the JC-19 board. (30P, 0.5 mm) (J-6082-270-A)
  - For extension between CN771 of the RP-228 board and drum (M901) (10P, 1 mm) (J-6082-064-A)
  - For extension between CN002 of the CM-56 board and CN501 of the VA-102 board (8P, 1 mm) (J-6082-058-A)
  - For extension between CN006 of the CM-56 board and the reel motor (M904) (15P, 1.25 mm) (J-6902-354-A)
  - For extension between CN001 of the CM-56 board and CN101 of the MD-63 board (16P, 1 mm) (J-6082-020-A)
- 16) Regulated power supply

NTAC : DSR-20MD  
PAL : DSR-20MDP

#### 3-1-2. Connection of Equipment

According to the specification for the input terminal (S VIDEO input, VIDEO input, or DV input), connect measuring equipment as shown in Fig. 5-3-1, and make adjustment.

The input terminal is specified in ( ) of the signal column.

Any input terminal can be used unless otherwise specified.

To switch between S VIDEO INPUT and VIDEO INPUT, use the VIDEO SELECT button on the front panel.

**Note 1:** In adjustments specifying for the S VIDEO input to be used, using the VIDEO input would disable the product specifications of this unit from being satisfied. Always use the input signal specified.

**Note 2:** If adjustments are used with the VTR with the S video output terminal as the signal source, the performance of this unit may be affected by the VTR. Use a pattern generator with a Y/C separator terminal as much as possible.

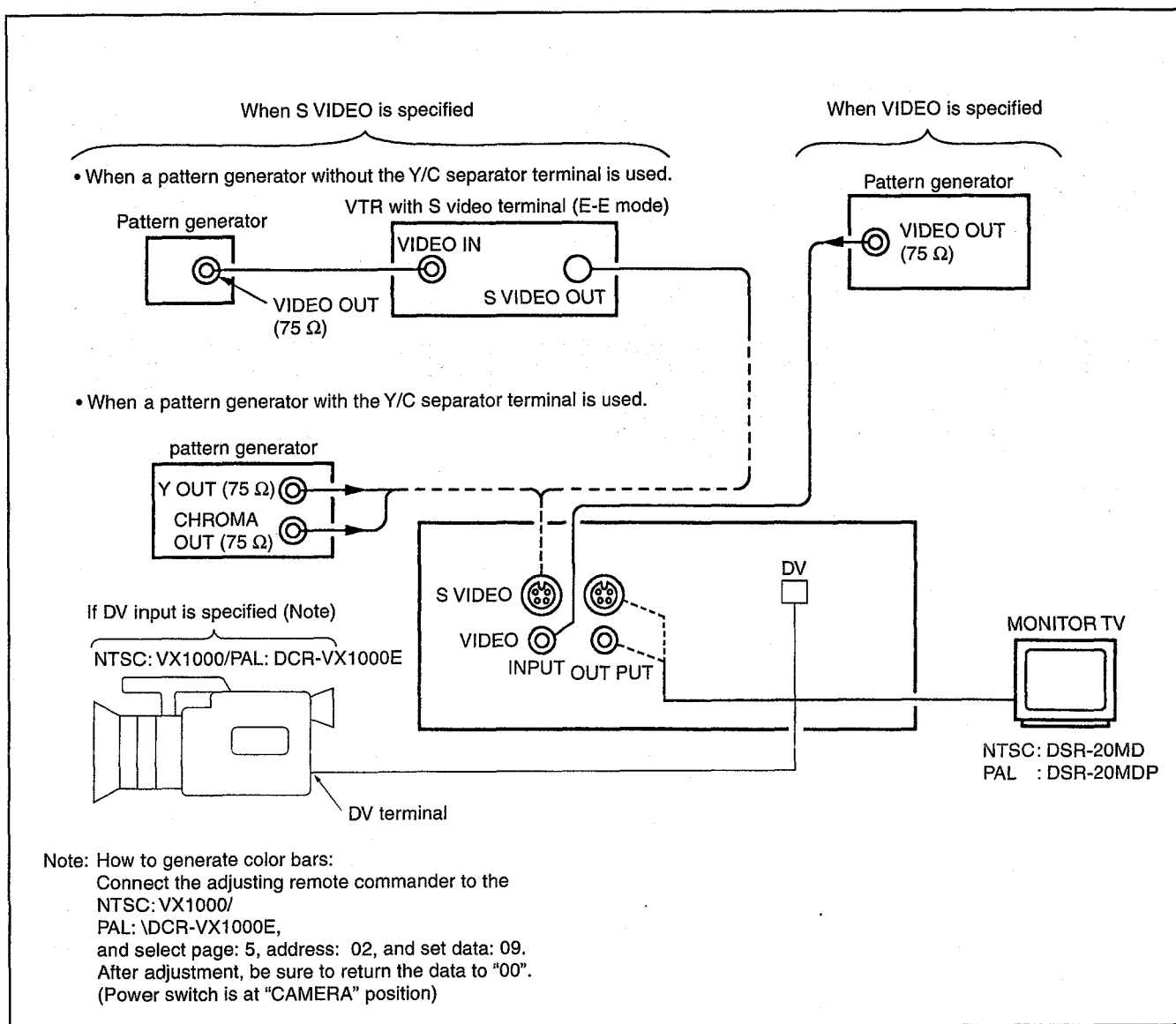


Fig. 5-3-1.

### 3-1-3. Adjusting Connectors (RP-228 Board CN775)

Some of the adjusting points of the video section are concentrated at CN775 of the RP-228 board. Connect the instruments via the multi CPC-8 jig (J-6082-388-A)

Pin No.	Signal Name	Pin No.	Signal Name
1	TCK	2	TMS
3	TDI	4	GND
5	TRACK ID	6	JSWP
7	GND	8	RF MONITOR
9	VCC2	10	AGC IN
11	VCC1	12	EQ IN
13	LOCK	14	REF OUT
15	ENV OUT	16	GND
17	TDO	18	C1ERP
19	FLTD	20	GND

Table 5-3-1.

### 3-1-4. Checking the Input Signals

Because the video signal obtained from the pattern generator is used as the adjustment signal for adjustments, the video output signal must satisfy the given specifications.

#### 1. S VIDEO Input

Connect the oscilloscope to the Y signal terminal of the S VIDEO input terminal, and check that the sync signal of the Y signal is approximately  $<0.286> [0.30]$  V and that the amplitude of the video section is approximately  $<0.714> [0.70]$  V. (When a VTR with the S VIDEO output terminal is used, also check that the chroma signal and burst signal have not remained)

Connect the oscilloscope to the chroma signal terminal of the S VIDEO input terminal, and check that the burst signal amplitude of the chroma signal is approximately  $<0.286> [0.30]$  V and flat, and that the red signal amplitude of the chroma signal is approximately  $<0.66> [0.67]$  V. The Y and chroma signals used in the adjustment are shown in Fig. 5-3-2.

$< >$ : NTSC model

[ ]: PAL model

#### 2. VIDEO Input

Connect the oscilloscope to the VIDEO input terminal, and check that the sync signal amplitude of the video signal is approximately  $<0.286> [0.30]$  V, the amplitude of the video section is approximately  $<0.714> [0.70]$  V, the amplitude of the burst signal is approximately  $<0.286> [0.30]$  V and flat, and that the red signal amplitude of the chroma signal is approximately  $<0.66> [0.67]$  V. The video signal (color bar) used for adjustments is shown in Fig. 5-3-3.

$< >$ : NTSC model

[ ]: PAL model

NTAC : DSR-20MD

PAL : DSR-20MDP

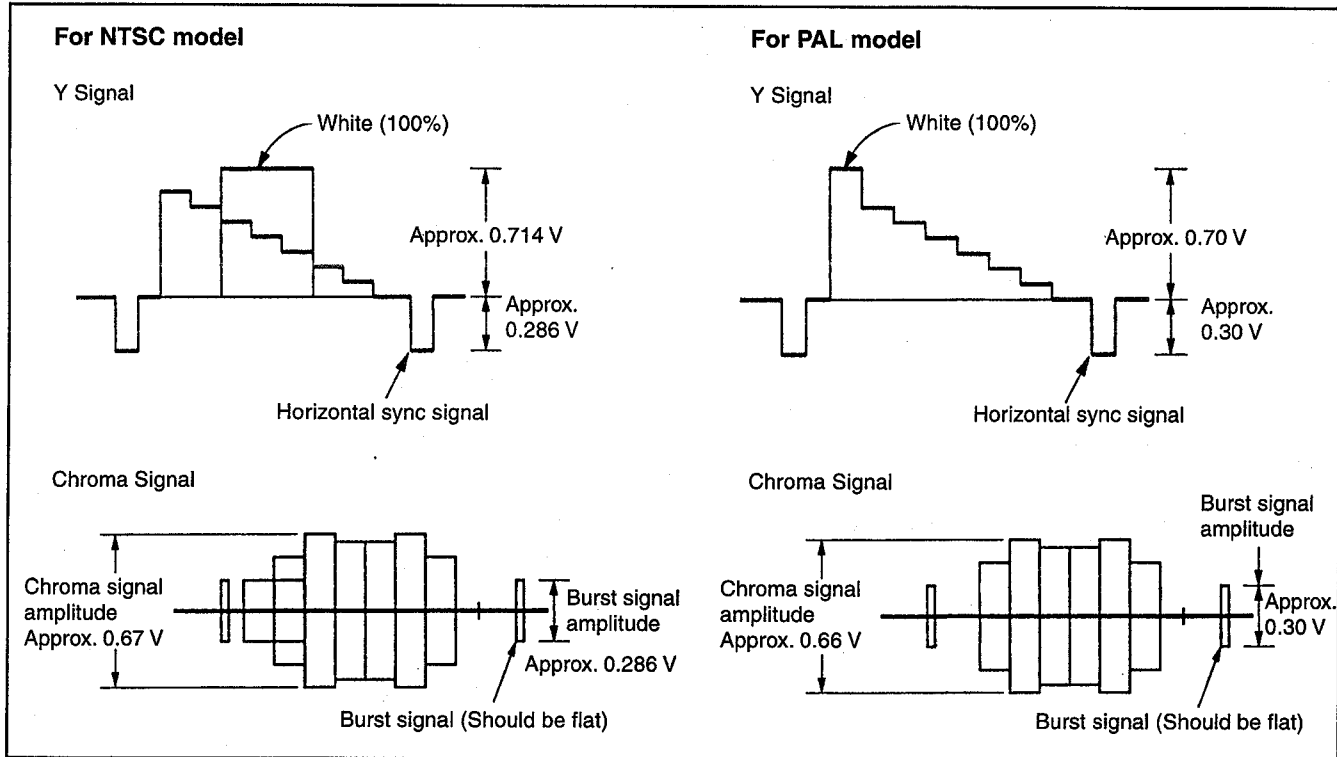


Fig. 5-3-2. Color Bar Signal of Pattern Generator

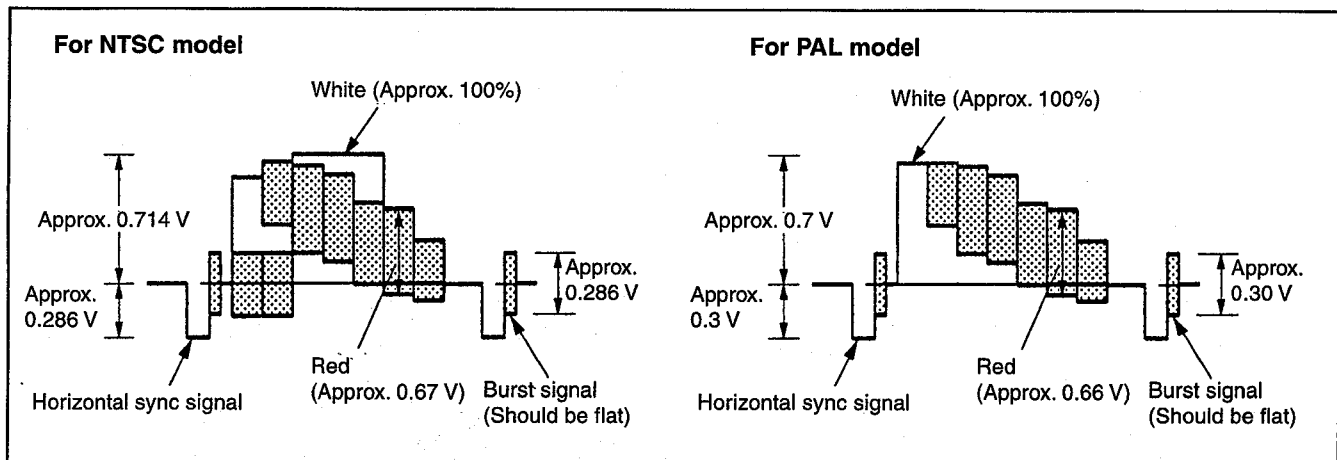


Fig. 5-3-3. Color Bar Signal of Pattern Generator

### 3-1-5. Adjustment Tapes

Use the alignment tapes shown in the following table.

Use tapes specified in the signal column of each adjustment.

Name	Use
SW/OL standard (XH2-3)	Switching position adjustment
Audio operation check (XH5-3 (NTSC), XH5-3P (PAL))	Audio system adjustment
System operation check (XH5-5 (NTSC), XH5-5P (PAL))	Operation check
BIST check (XH5-6 (NTSC), XH5-6P (PAL))	BIST check

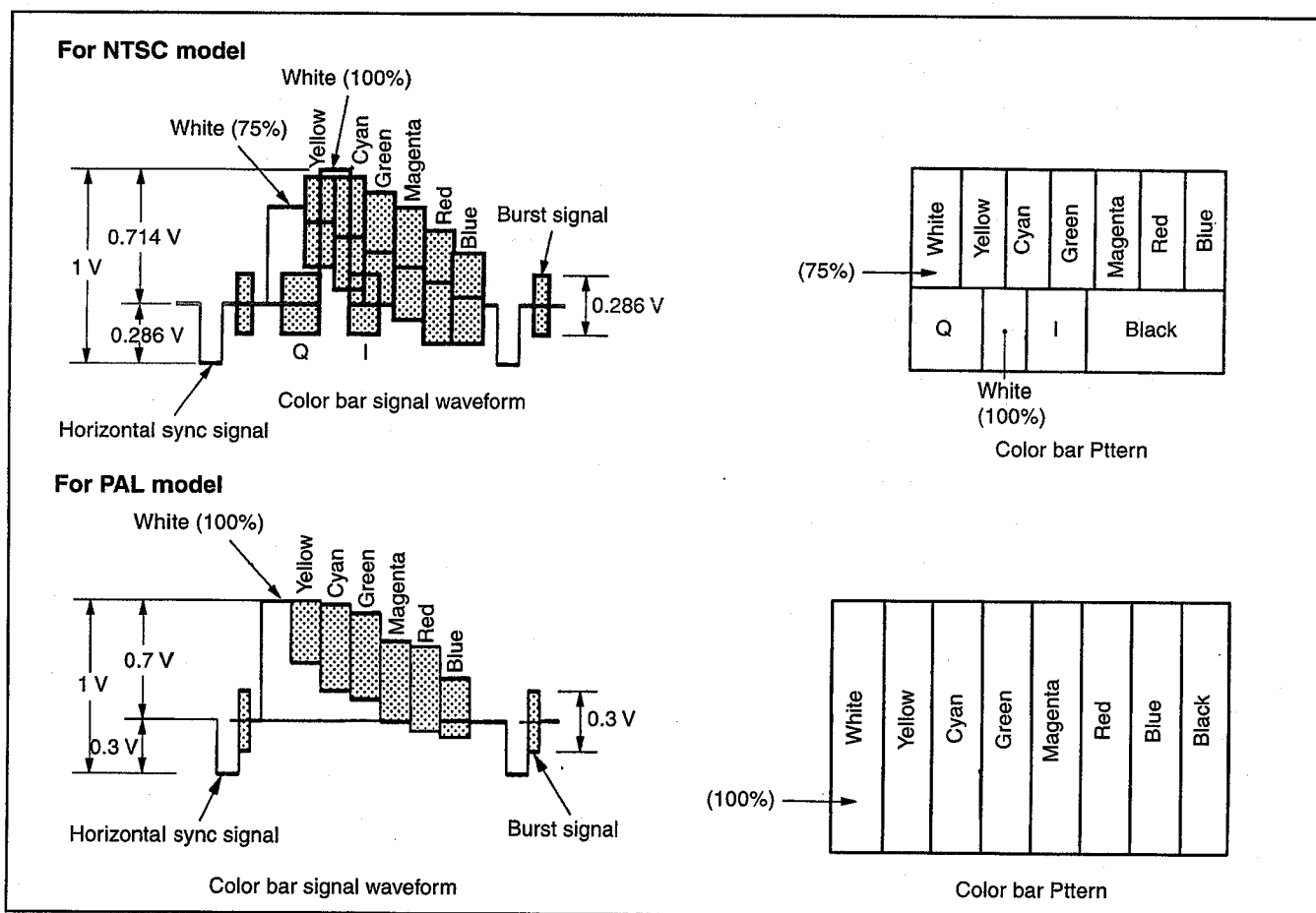
**Table 5-3-2.**

Fig. 5-3-4. shows the 75% color bar signals recorded on the alignment tape for Audio Operation Check (NTSC).

**Note :** Measure with video terminal (Terminated at 75  $\Omega$ )

NTAC : DSR-20MD

PAL : DSR-20MDP



**Fig. 5-3-4. Color Bar Signal of Alignment Tapes**

### 3-1-6. Input/ Output Level and Impedance

#### LINE IN

Video input	BNC connector Input signal: 1 Vp-p (75 ohms unbalanced)
S Video input	Mini DIN 4-pin Luminance signal: 1 Vp-p (75 ohms unbalanced) Chrominance signal: 0.286 Vp-p (NTSC), 0.3 Vp-p (PAL), (75 ohms unbalanced)
Audio input	Phono jack (L, R) Input level: 2 Vrms (full bit) Input impedance: more than 47 kohms

#### LINE OUT

Video output	BNC connector Output signal: 1 Vp-p (75 ohms unbalanced)
S Video output	Mini DIN 4-pin Luminance signal: 1 Vp-p (75 ohms unbalanced) Chrominance signal: 0.286 Vp-p (NTSC), 0.3 Vp-p (PAL), (75 ohms unbalanced)
Audio output	Phono jack (L, R) Output level: 2 Vrms (full bit) Output impedance: less than 10 kohms

### 3-2. POWER SUPPLY SYSTEM ADJUSTMENT

#### 1. Power Supply Voltage Check Power Block (U-2 Board)

Mode	Playback
Measuring Instrument	Digital voltmeter
UNSW6V Check	
Measuring Point	Pin ① of CN11
Specified Value	$6.0 \pm 0.5$ Vdc
UNSW3.1V Check	
Measuring Point	Pin ② of CN11
Specified Value	$3.1 \pm 0.2$ Vdc
VIDEO5V, AUDIO5V Check	
Measuring Point	Pin ③, ⑦ of CN11
Specified Value	$5.0 \pm 0.12$ Vdc
SW3.1V Check	
Measuring Point	Pin ④ of CN11
Specified Value	$3.1 \pm 0.1$ Vdc
VIDEO-5V, AUDIO-5V Check	
Measuring Point	Pin ⑥, ⑨ of CN11
Specified Value	$-5.0 \pm 0.12$ Vdc
SW5V Check	
Measuring Point	Pin ③ of CN11
Specified Value	$5.0 \pm 0.12$ Vdc
DRUM6V Check	
Measuring Point	Pin ④ of CN10
Specified Value	$6.0 \pm 0.5$ Vdc
MOTOR14V Check	
Measuring Point	Pin ⑥ of CN10
Specified Value	$14.0 \pm 2$ Vdc

#### 2. Video/Audio Block Power Supply Voltage Check Power Block (U-2 Board)

Mode	Playback
Measuring Instrument	Digital voltmeter
UNSW6V Check	
Measuring Point	Pin ② of CN12
Specified Value	$6.0 \pm 0.5$ Vdc
UNSW3.1V Check	
Measuring Point	Pin ④ of CN12
Specified Value	$3.1 \pm 0.2$ Vdc
UNSW-9V Check	
Measuring Point	Pin ⑦ of CN12
Specified Value	$-9 \pm 0.5$ Vdc
UNSW14V Check	
Measuring Point	Pin ⑧ of CN12
Specified Value	$14 \pm 2.0$ Vdc
UNSW12V Check	
Measuring Point	Pin ③ of CN12
Specified Value	$12.0 \pm 1$ Vdc

### 3-3. SYSTEM CONTROL SYSTEM ADJUSTMENT

#### 1. Initializing the C, D, E Page Data

**Note 1:** If "Initializing the C, D, E Page Data" is performed, all data of the C page, D page and E page will be initialized.

**Note 2:** If the C, D, E page data has been initialized, "Modification of C, D, E page Data" and all adjustments need to be performed again.

Mode	E-E
Signal	Arbitrary
Adjustment Page	C
Adjustment Address	00 to 6F
Adjustment Page	D
Adjustment Address	00 to 4F
Adjustment Page	E
Adjustment Address	00 to 3B

#### 2. Input of C page Initial Data

**Input method:**

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 4, address: 02, set data: 01, and press the PAUSE button of the adjusting remote commander.
- 3) Select page: 4, address: 02, and confirm that the data change in the order of "01" → "03" → "05" → "00".
- 4) Modify the C page data. (Refer to C page address)

#### 3. Input of D page Initial Data

**Input method:**

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 2, address: 00, set data: 2D, and press the PAUSE button of the adjusting remote commander.
- 3) Select page: 2, address: 01, set data: 2D, and press the PAUSE button of the adjusting remote commander.
- 4) Select page: 2, address: 02, and confirm that the data is "01".
- 5) Modify the D page data. (Refer to D page address)

#### 4. Input of E page Initial Data

**Input method:**

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: 00, set data: 2D, and press the PAUSE button of the adjusting remote commander.
- 3) Select page: 5, address: 01, set data: 2D, and press the PAUSE button of the adjusting remote commander.
- 4) Select page: 5, address: 02, and confirm that the data is "01".
- 5) Modify the E page data. (Refer to E page address)

#### 5. Modification of C, D, E, Page Data

If the C, D, E page data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

**Modifying Method:**

- 1) Before changing the data, select page: 0, address: 01, and set data: 01.
- 2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.

**Note :** If copy the data built in the different model, this set may not operate.

- 3) When changing the data, press the PAUSE button of the adjusting remote commander each time when setting new data to write the data in the non-volatile memory.
- 4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.
- 5) After completing "Modification of C, D, E Page Data", select page: 0, address: 01, and set data: 00. Also perform all adjustments.



## 6. Page C Address List

**Note 1:** Fixed data 1: Initialized data. (Refer to 2. Input of C Page Initial Data)  
Fixed data 2: Modified data. (Refer to 5. Modification of C, D, E, Page Data)

Address	Initial Value	Remark
00	Fixed data 1 (Initial data)	
01	Fixed data 2 (Changed data. Read from same model and copy it.)	
02 to 07	Fixed data 1 (Initial data)	
08	Fixed data 2 (Changed data. Read from same model and copy it.)	
09	Fixed data 1 (Initial data)	
0A to 0C	Fixed data 1 (Initial data)	
0D	Fixed data 2 (Changed data. Read from same model and copy it.)	
0E, 0F	Fixed data 1 (Initial data)	
10 to 19	Fixed data 1 (Initial data)	
1A to 1F	Fixed data 1 (Initial data)	
20 to 29	Fixed data 1 (Initial data)	
2A to 2F	Fixed data 1 (Initial data)	
30 to 39	00	Emergency memory address
3A, 3B	00	Emergency memory address
3C, 3D	F8	PLL fo adjustment
3E, 3F	70	Recording current adjustment
40, 41	C0	AEQ adjustment
42, 43	90	AEQ adjustment
44	86	AGC Center level adjustment
45	Fixed data 1 (Initial data)	
46	86	PLL Capture range adjustment
47	C8	CLK delay adjustment
48, 49	Fixed data 1 (Initial data)	
4A, 4B	Fixed data 1 (Initial data)	
4C to 4F	00	Switching position adjustment
50	54	Capstan FG duty adjustment
51	31	Capstan FG duty adjustment
52 to 59	Fixed data 1 (Initial data)	
5A	00	AEQ adjustment
5B to 5F	Fixed data 1 (Initial data)	
60 to 69	Fixed data 1 (Initial data)	
6A to 6F	Fixed data 1 (Initial data)	

**Table 5-3-3.**

## 7. Page D Address List

**Note 1:** Fixed data 1: Initialized data. (Refer to 3. Input of D Page Initial Data)  
Fixed data 2: Modified data. (Refer to 5. Modification of C, D, E, Page Data)

Address	Initial Value	Remark
00 to 0F		
10 to 12	Fixed data 1 (Initial data)	
13	Fixed data 2 (Changed data. Read from same model and copy it.)	
14	Fixed data 1 (Initial data)	
15 to 18	Fixed data 2 (Changed data. Read from same model and copy it.)	
19	Fixed data 1 (Initial data)	
1A to 1E	Fixed data 1 (Initial data)	
1F	Fixed data 2 (Changed data. Read from same model and copy it.)	
20 to 29	Fixed data 1 (Initial data)	
2A, 2B	Fixed data 1 (Initial data)	
2C to 2F	Fixed data 2 (Changed data. Read from same model and copy it.)	
30 to 32	Fixed data 1 (Initial data)	
33	59	IC422 27 MHz XTAL fo adjustment
34	19	Playback CR signal level adjustment/ Encoder R-Y input level adjustment
35	37	Playback CB signal level adjustment/ Encoder B-Y input level adjustment
36	18	Playback Y signal level adjustment/ Y output level adjustment
37 to 39	Fixed data 1 (Initial data)	
3A to 3F	Fixed data 1 (Initial data)	
40	Fixed data 1 (Initial data)	
41	00	Playback burst level adjustment
42	Fixed data 2 (Changed data. Read from same model and copy it.)	
43	Fixed data 1 (Initial data)	
44 to 46	Fixed data 2 (Changed data. Read from same model and copy it.)	
47 to 49	Fixed data 1 (Initial data)	
4A	Fixed data 2 (Changed data. Read from same model and copy it.)	
4B to 4F	Fixed data 1 (Initial data)	

**Table 5-3-4.**

## 8. Page E Address List

**Note 1:** Fixed data 1: Initialized data. (Refer to 4. Input of E Page Initial Data)

Fixed data 2: Modified data. (Refer to 5. Modification of C, D, E, Page Data)

Address	Initial Value	Remark
00 to 1B	Fixed data 1 (Initial data)	
1C	Fixed data 2 (Changed data. Read from same model and copy it.)	
1D	8D	Battery down adjustment and check
1E	86	
1F	80	
20 to 23	Fixed data 1 (Initial data)	
24	Fixed data 2 (Changed data. Read from same model and copy it.)	
25 to 3F	Fixed data 1 (Initial data)	

**Table 5-3-5.**

### 3-4. SERVO SYSTEM ADJUSTMENTS

#### 1. Switching Position Adjustment (CM-56 Board)

Mode	Playback
signal	SW/OL reference tape
Measurement Point	Page: 3, address: 03 on displayed data of adjusting remote commander
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	4C, 4D, 4E, 4F
Specified Value	"00"

##### Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 01, set data: 0E, and press the PAUSE button of the adjusting remote commander.
- 3) Select page: 3, address: 02, and confirm that the data changes from "0E" to "00".
- 4) Select page: 3, address: 03, and confirm that the data is "00".
- 5) Turn OFF the HOLD switch on the adjusting remote commander and wait for more than 2 seconds. (The adjusted data are automatically written to page: C, address: 4C to 4F)
- 6) Turn ON the HOLD switch on the adjusting remote commander.
- 7) Select page: 0, address: 01, and set data: 00.
- 8) Stop the tape playback.
- 9) Turn the POWER switch OFF.

#### 2. Capstan FG Duty Adjustment (CM-56 Board)

Mode	Playback
signal	Arbitrary tape
Measurement Point	Page: 3, address: 03 on displayed data of adjusting remote commander
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	50, 51
Specified Value	"00"

##### Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 01, set data: 15, and press the PAUSE button of the adjusting remote commander.
- 3) Select page: 3, address: 02, and confirm that the data changes from "15" to "00".
- 4) Select page: 3, address: 03, and confirm that the data is the following value  
When "00": Normal  
When "01": Faulty  
Perform the following adjustment only when "00" is displayed.
- 5) Select page: 3, address: 04 and 05, read the data, and take the values as D<sub>04</sub> and D<sub>05</sub> respectively.  
(The data on page: 3, address: 05 must be 2F to 3F)
- 6) Select page: C, address: 50, set data: D<sub>04</sub>, and press the PAUSE button of the adjusting remote commander.
- 7) Select page: C, address: 51, set data: D<sub>05</sub>, and press the PAUSE button of the adjusting remote commander.
- 8) Select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 9) Select page: 0, address: 01, and set data: 00.
- 10) Stop the tape playback.
- 11) Turn the POWER switch OFF.

### 3-5. VIDEO SYSTEM ADJUSTMENTS

#### 3-5-1. RP-228 Board Adjustments

##### 1. Recording Current Adjustment (RP-228 Board)

Mode	E-E
Measurement Point	ODDch adjustment CH1: Pin ⑥ of CN771 (CL812) CH2: Pin ⑤ of CN771 (CL813) EVENch adjustment CH1: Pin ② of CN771 (CL816) CH1: Pin ③ of CN771 (CL815)
Measuring Instrument	Oscilloscope ADD mode CH2 INV mode
Adjustment Page	C
Adjustment Address	3E, 3F
Specified Value	$A = 4.1 \pm 0.1$ Vp-p

Connection: Disconnect CN771 and connect as follows.

- 1) ODDch adjustment: Connect a 180  $\Omega$  resistor between Pin ⑥ of CN771 (CL812) and Pin ⑤ of CN771 (CL813).
- 2) EVENch adjustment: Connect a 180  $\Omega$  resistor between Pin ② of CN771 (CL816) and Pin ③ of CN771 (CL815).  
180  $\Omega$  resistor (Parts code: 1-249-408-11)

##### Adjusting method:

- 1) Equalize the vertical range of CH1 and CH2 of the oscilloscope.
- 2) Set the oscilloscope to the ADD mode, and set CH2 to the INV mode.
- 3) Select page: 0, address: 01, and set data: 01.
- 4) Select page: 3, address: 01, set data: 0C, and press the PAUSE button of the adjusting remote commander.
- 5) Select page: 3, address: 34, and set data: 01.
- 6) Select page: C, address: 3F (ODDch adjustment) or 3E (EVENch adjustment), change the data, and adjust the signal voltage (A) to the specified value, press the PAUSE button on the adjusting remote commander.
- 7) Select page: 3, address: 34, and set data: 04.
- 8) Select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 9) Select page: 0, address: 01, and set data: 00.

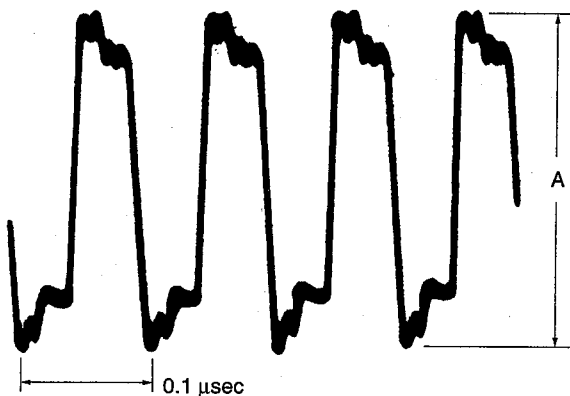


Fig. 5-3-5.

##### 2. PLL fo Adjustment (RP-228 Board)

Mode	E-E
Measurement Point Measuring Instrument	Displayed data of page: 3, address: 04
Adjustment Page	C
Adjustment Address	3D, 3C
Specified Value	Displayed data is "FD" to "FF", "00" to "03" ("FF", "00" are center values)

##### Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 01, set data: 05, and press the PAUSE button of the adjusting remote commander.
- 3) Select page: 3, address: 36, and set data: 04.
- 4) Select page: 3, address: 04, and check that the average value D<sub>04</sub> of the displayed data is "FD" to "FF" or "00" to "03". If outside this range, select page: C, address: 3C, change the data, and check again.  
[If D<sub>04</sub> is "80" to "FC"]  
Select page: C, address: 3C, and decrease the data. (As the data is to be rewritten, press the PAUSE button of the adjusting remote commander)  
[If D<sub>04</sub> is "04" to "7F"]  
Select page: C, address: 3C, and increase the data. (As the data is to be rewritten, press the PAUSE button of the adjusting remote commander)
- 5) Select page: 3, address: 36, and set data: 05.
- 6) Select page: 3, address: 04, and check that the average value D<sub>04</sub> of displayed data is "FD" to "FF" or "00" to "03". If outside this range, select page: C, address: 3D, change the data, and check again.  
[If D<sub>04</sub> is "80" to "FC"]  
Select page: C, address: 3D, and decrease the data. (As the data is to be rewritten, press the PAUSE button of the adjusting remote commander)  
[If D<sub>04</sub> is "04" to "7F"]  
Select page: C, address: 3D, and increase the data. (As the data is to be rewritten, press the PAUSE button of the adjusting remote commander)
- 7) Select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 8) Select page: 3, address: 36, and set data: 02.
- 9) Select page: 0, address: 01, and set data: 00.

### 3. CLK DELAY Adjustment (RP-228 Board)

Mode	Recording/playback
Signal	Color bar
Measurement Point	CH1: Pin ⑩ of CN775 (C1ERP) CH2: Pin ⑥ of CN775 (JSWP)
Measuring Instrument	Oscilloscope Trigger source: CH2
Adjustment Page	C
Adjustment Address	47

#### Adjusting method:

- 1) Record color bar signal for two minutes on any tape.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Write the following data in page: C, address: 40 to 43, 47, 4B, 5A.  
 (To write the data, press the PAUSE button of the adjusting remote commander each time data is set.)  
 Page: C, address: 40, data: C0  
 Page: C, address: 41, data: C0  
 Page: C, address: 42, data: 90  
 Page: C, address: 43, data: 90  
 Page: C, address: 47, data: C8  
 Page: C, address: 4B, data: 80  
 Page: C, address: 5A, data: 00
- 4) Playback the part recorded with the color bar.
- 5) Select page: C, address: 47, increase the data, and read the data D<sub>1</sub> when the CH1 pulse is set to the whole audio and video areas.
- 6) Select page: C, address: 47, decrease the data, and read the data D<sub>2</sub> when the CH1 pulse is set to the whole audio and video areas.
- 7) Obtain the average value of D<sub>1</sub> and D<sub>2</sub>, and take it as D<sub>3</sub>.
- 8) Select page: C, address: 47, set data: D<sub>3</sub>, and press the PAUSE button of the adjusting remote commander.
- 9) Select page: C, address: 4B, set data: 0E, and press the PAUSE button of the adjusting remote commander.
- 10) Select page: C, address: 5A, set data: 8C, and press the PAUSE button of the adjusting remote commander.
- 11) Select page: 0, address: 01, and set data: 00.
- 12) After completing the adjusting, perform "5. AEQ Adjustment".

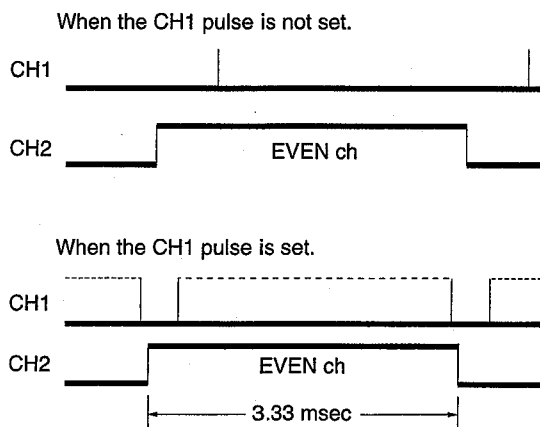


Fig. 5-3-6.

### 4. AGC Center Level Adjustment (RP-228 Board)

Mode	Recording/playback
Signal	Color bar
Measurement Point	CH1: Pin ⑩ of CN775 (C1ERP) CH2: Pin ⑥ of CN775 (JSWP)
Measuring Instrument	Oscilloscope Trigger source: CH2
Adjustment Page	C
Adjustment Address	44

#### Adjusting method:

- 1) Record color bar signal for two minutes on any tape.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Write the following data in page: C, addresses: 40 to 44, 4B, 5A.  
 (To write the data, press the PAUSE button of the adjusting remote commander each time data is set.)  
 Page: C, address: 40, data: C0  
 Page: C, address: 41, data: C0  
 Page: C, address: 42, data: 90  
 Page: C, address: 43, data: 90  
 Page: C, address: 44, data: 90  
 Page: C, address: 4B, data: 80  
 Page: C, address: 5A, data: 00
- 4) Playback the part recorded with the color bar signal.
- 5) Select page: C, address: 44, increase the data, and read the data D<sub>1</sub> when the CH1 pulse is set to the whole audio and video areas.
- 6) Select page: C, address: 44, decrease data, and read the data D<sub>2</sub> when the CH1 pulse is set to the whole audio and video areas.
- 7) Obtain the average value of D<sub>1</sub> and D<sub>2</sub>, and take it as D<sub>3</sub>.
- 8) Select page: C, address: 44, set data: D<sub>3</sub>, and press the PAUSE button of the adjusting remote commander.
- 9) Select page: C, address: 4B, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 10) Select page: C, address: 5A, set data: 8C, and press the PAUSE button of the adjusting remote commander.
- 11) Select page: 0, address: 01, and set data: 00.
- 12) After completing the adjusting, perform "5. AEQ Adjustment".

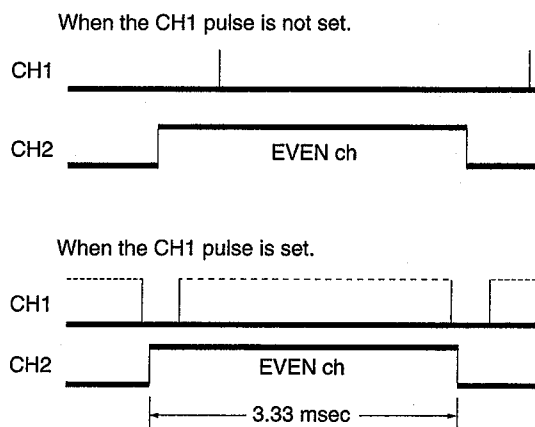


Fig. 5-3-7.

## 5. AEQ Adjustment (RP-228 Board)

Mode	Recording/playback
Signal	Arbitrary
Measurement Point	Pin ⑥ of CN775 (RF MONITOR) (Note 1)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	40, 41, 42, 43, 5A

**Note 1:** Connect a 75  $\Omega$  resistor between Pin ⑥ and ⑦ (GND) of CN 775.

75  $\Omega$  resistor (Parts code: 1-247-804-11)

**Note 2:** Use the DVM60ME tape or equivalents.

### Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: C, address: 4B, set data: 80, and press the PAUSE button of the adjusting remote commander.
- 3) Write data in page: C, addresses: 40 to 43, and 5A as shown in the following table.

(To write the data, press the PAUSE button of the adjusting remote commander each time data is set.)

Address	Data
40	C0
41	C0
42	90
43	90
5A	00

- 4) Record color bar signal for one minute from the tape top.
- 5) Rewind the tape, and play back the part recorded.
- 6) When the RF output stabilizes, select page: 3, address: 01, and set data: 07, and press the PAUSE button of the adjusting remote commander.
- 7) About 20 to 30 seconds after pressing the PAUSE button, select page: 3, address: 02, and check that the data changes from "07" to "00".
- 8) Select page: 3, address: 03, and check that the data is the following value.
  - When "00" : Normal
  - When "01" : EVENch is faulty
  - When "02" : ODDch is faulty
  - When "03" : EVENch and ODDch are faulty
 Perform the following procedure only when "00" is displayed.
- 9) Select page: 3, address: 04 to 07, read the data, and take the values as D04, D05, D06, and D07.

- 10) Select page: C, address: 40, set data: D04, and press the PAUSE button of the adjusting remote commander.
- 11) Select page: C, address: 42, set data: D05, and press the PAUSE button of the adjusting remote commander.
- 12) Select page: C, address: 41, set data: D06, and press the PAUSE button of the adjusting remote commander.
- 13) Select page: C, address: 43, set data: D07, and press the PAUSE button of the adjusting remote commander.
- 14) Select page: C, address: 5A, set data: 8C, and press the PAUSE button of the adjusting remote commander.
- 15) Select page: C, address: 4B, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 16) Select page: 0, address: 01, and set data: 00.

## 6. PLL Capture Range Adjustment (RP-228 Board)

Mode	Recording/Playback
Signal	Color bar
Measurement Point	CH1: Pin ⑩ of CN775 (C1ERP) CH2: Pin ⑥ of CN775 (JSWP)
Measuring Instrument	Oscilloscope Trigger source: CH2
Adjustment Page	C
Adjustment Address	46

### Adjusting method:

- 1) Record color bar signal for two minutes on any tape.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Write the following data in page: C, addresses: 4B and 5A.  
 (To write the data, press the PAUSE button of the adjusting remote commander each time data is set.  
 Page: C, address: 4B, data: 80  
 Page: C, address: 5A, data: 00)
- 4) Playback the part recorded with the color bar signal.
- 5) Select page: C, address: 46, set data: 80, and press the PAUSE button of the adjusting remote commander.
- 6) Select page: C, address: 46, set the data to "60", and check that the pulse is not set at the audio area head of the ERRP waveform's ODDch of the oscilloscope (CH1).
- 7) Select page: C, address: 46, set the data to "A0", and check that the pulse is not set at the audio area head of the C1ERP waveform's ODDch of the oscilloscope (CH1).  
 After confirming steps 6) and 7), select page: C, address: 46, set data: 80 again and proceed to step 12).
- 8) If the pulse is set in steps 6) and 7), select page: C, address: 46, increase the data from "80", and read the data D<sub>1</sub> when the pulse is set at the audio area head of CH1.
- 9) Select page: C, address: 46, decrease the data from "80", and read the data D<sub>2</sub> when the pulse is set at the audio area head of CH1.
- 10) Obtain the average value of D<sub>1</sub> and D<sub>2</sub>, and take it as D<sub>3</sub>.
- 11) Select page: C, address: 46, set data: D<sub>3</sub>, and press the PAUSE button of the adjusting remote commander.
- 12) Select page: C, address: 4B, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 13) Select page: C, address: 5A, set data: 8C, and press the PAUSE button of the adjusting remote commander.
- 14) Select page: 0, address: 01, and set data: 00.

## 7. IC774 41.85 MHz VCO Check (RP-228 Board)

Mode	E-E
Signal	Arbitrary
Measurement Point	Page: 3, address: 39 on displayed data of adjusting remote commander
Measuring Instrument	
Adjustment Value	"37" to "C9" (0.6 to 2.2 Vdc)

### Checking method:

- 1) Select page: 3, address: 39, and check that the displayed data is "37" to "C9".

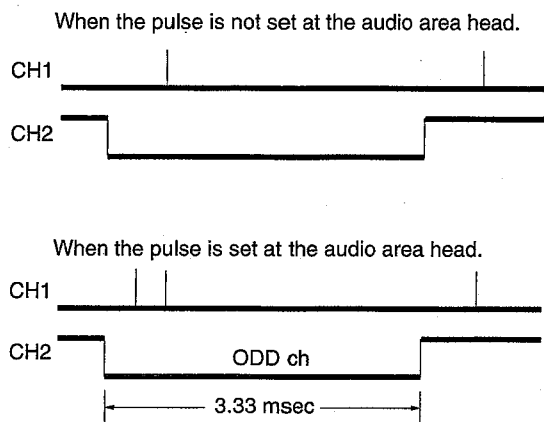


Fig. 5-3-8.



### 3-5-2. JC-19 Board Adjustments

#### 1. A/D Converter Reference Voltage Adjustment 1 (JC-19 Board)

Mode	E-E
Signal	Arbitrary
Measurement Point	Pin ⑤ of IC013 (CL061)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV001
Specified Value	$A = 2.83 \pm 0.01$ Vdc

##### Adjusting method:

- 1) Set the VRT voltage (A) to the specified value using RV001.

#### 2. A/D Converter Reference Voltage Adjustment 2 (JC-19 Board)

Mode	E-E
Signal	Arbitrary
Measurement Point	Pin ③ of IC013 (CL062)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV002
Specified Value	$A = 0.96 \pm 0.01$ Vdc

##### Adjusting method:

- 1) Set the VBT voltage (A) to the specified value using RV002.

#### 3. Y Signal Clamp Reference Voltage Adjustment (JC-19 Board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ⑥ of IC011 (CL054)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV011
Specified Value	$A = 1.150 \pm 0.005$ Vdc

Connection: Connect a jumper wire between Pin ⑥ of IC018 (CL150) and GND.

##### Adjusting method:

- 1) Set the Y signal clamp reference voltage (A) to the specified value using RV011.

#### 4. CR Signal Clamp Reference Voltage Adjustment (JC-19 Board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ⑧ of IC010 (CL052)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV010
Specified Value	$A = 1.900 \pm 0.005$ Vdc

Connection: Connect a jumper wire between Pin ⑥ of IC018 (CL150) and GND.

##### Adjusting method:

- 1) Set the CR signal clamp reference voltage (A) to the specified value using RV010.

#### 5. CB Signal Clamp Reference Voltage Adjustment (JC-19 Board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ⑧ of IC009 (CL053)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV012
Specified Value	$A = 1.900 \pm 0.005$ Vdc

Connection: Connect a jumper wire between Pin ⑥ of IC018 (CL150) and GND.

##### Adjusting method:

- 1) Set the CB signal clamp reference voltage (A) to the specified value using RV012.

## 6. Playback Y Signal Level Adjustment (JC-19 Board)

Mode	Recording
Signal	DV input (Note 1)
Measurement Point	Pin ⑥ of CN104 or pin ②③ of CN102 on VA-102 board
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	36
Specified Value	A = $0.43 \pm 0.04$ V (NTSC) A = $0.41 \pm 0.04$ V (PAL)

**Note 1:** Generate color bar signal with NTSC: DCR-VX1000/PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, select page: 5, address: 02, and set data: 09. After adjustment, be sure to return the data to "00")

### Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 36, change data, and adjust the Y signal level (A) to the specified value.
- 3) Select page: 0, address: 01, and set data: 00.

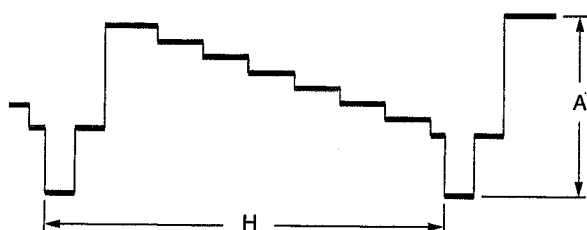


Fig. 5-3-9.

## 7. Playback CR Signal Level Adjustment (JC-19 Board)

Mode	Recording
Signal	DV input (Note 1)
Measurement Point	Pin ⑩ of CN104 or pin ②③ of CN102 on VA-102 board
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	34
Specified Value	A = $540 \pm 10$ mV

**Note 1:** Generate color bar signal with NTSC: DCR-VX1000/PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, select page: 5, address: 02, and set data: 09. After adjustment, be sure to return the data to "00")

### Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 34, change data, and adjust the CR signal level (A) to the specified value.
- 3) Select page: 0, address: 01, and set data: 00.

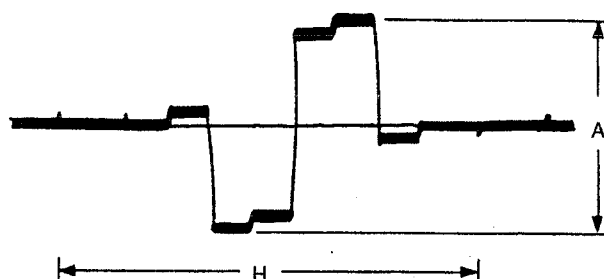


Fig. 5-3-10.

### 8. Playback CB Signal Level Adjustment (JC-19 Board)

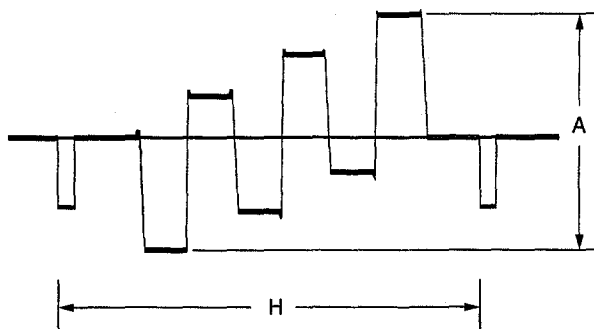
Mode	Recording
Signal	DV input (Note 1)
Measurement Point	Pin ⑫ of CN104 or pin ⑬ of CN102 on VA-102 board
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	35
Specified Value	$A = 390 \pm 10 \text{ mV}$

**Note 1:** Generate color bar signal with NTSC: DCR-VX1000/PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, select page: 5, address: 02, and set data: 09. After adjustment, be sure to return the data to "00")

#### Adjusting method:

- 1) Select page: 0, address: 01, and set data: 00.
- 2) Select page: D, address: 35, change data, and adjust the CB signal level (A) to the specified value.
- 3) Select page: 0, address: 01, and set data: 00.

#### For NTSC model



#### For PAL model

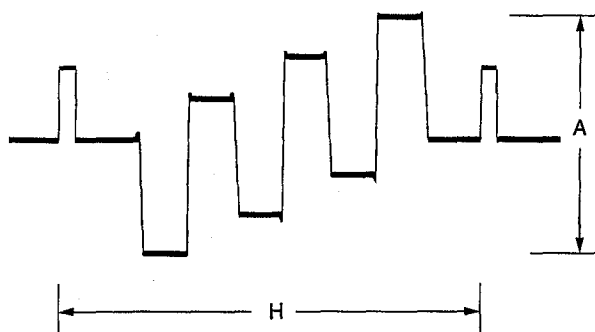


Fig. 5-3-11.

### 9. IC422 27MHz XTAL to Adjustment (JC-19 Board)

Mode	Playback
Signal	Arbitrary tape
Measurement Point	Pin ② of IC442 (CL479)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	33
Specified Value	$f = 13500000 \pm 100 \text{ Hz}$

#### Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 33, change data, and adjust the clock frequency (f) to the specified value.
- 3) Press the PAUSE button on the adjusting remote commander.
- 4) Select page: 0, address: 01, and set data: 00.

### 10. AFC Preliminary Adjustment (JC-19 Board)

Mode	Recording
Signal	Color bar
Measurement Point	Pin ⑨ of IC205 (CL214)
Measuring Instrument	Digital voltmeter
Adjusting Element	CT201
Specified Value	$A = 1.9 \pm 0.5 \text{ Vdc}$

#### Adjusting method:

- 1) Set the DC voltage (A) to the specified value using CT201.

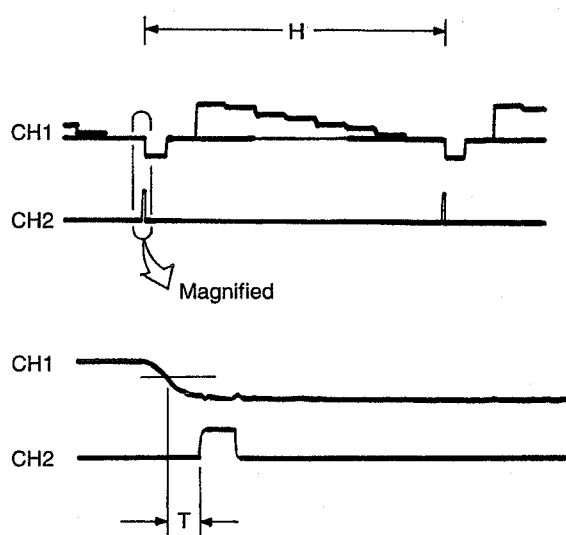
## 11. AFC Picture Frame Adjustment (JC-19 Board)

Mode	Recording
Signal	Color bar (Video input) (Note 1)
Measurement Point	CH1: Pin ⑫ of IC017 (CL051) CH2: Pin ⑫ of IC205 (CL222)
Measuring Instrument	Oscilloscope
Adjusting Element	RV201
Specified Value	$T = 110 \pm 10 \text{ nsec}$

**Note 1:** Set "VIDEO" mode with the INPUT SELECT button on the front panel.

### Adjusting method:

- 1) Set the time difference (T) between the H SYNC falling and AFH rising to the specified value using RV201.



**Fig. 5-3-12.**

## 12. AFC Adjustment (JC-19 Board)

Mode	Recording
Signal	Color bar
Measurement Point	Pin ⑨ of IC205 (CL214)
Measuring Instrument	Digital voltmeter
Adjusting Element	CT201
Specified Value	$A = 1.80 \pm 0.05 \text{ Vdc}$

### Adjusting method:

- 1) Set the DC voltage (A) to the specified value using CT201.

### 3-5-3. VA-102 Board Adjustments

#### 1. AGC Adjustment (VA-102 Board)

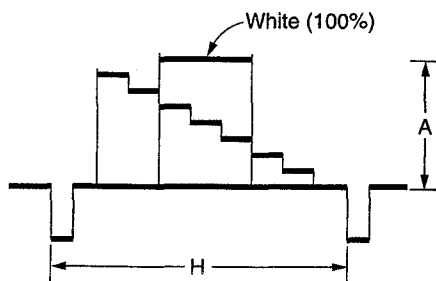
Mode	E-E
Signal	Color bar (VIDEO input) (Note 1)
Measurement Point	Pin ⑩ of IC205 (CL220)
Measuring Instrument	Oscilloscope
Adjustment Element	RV202
Specified Value	A = $1.428 \pm 0.02$ V (NTSC) A = $1.400 \pm 0.02$ V (PAL)

**Note 1:** Set "VIDEO" mode with the INPUT SELECT button on the front panel.

##### Adjusting method:

- 1) Set the Y signal level (A) to the specified value using RV202.

##### For NTSC model



##### For PAL model

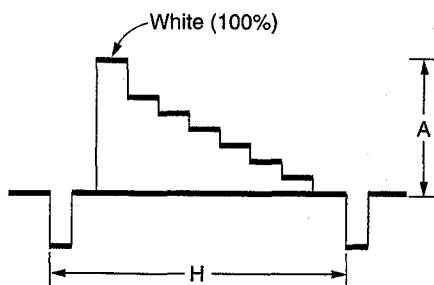


Fig. 5-3-13.

#### 2. Analog E-E VIDEO Signal Output Level Adjustment (VA-102 Board)

Mode	E-E
Signal	Color bar (S VIDEO input) (Note 1)
Measurement Point	Pin ⑨ of IC401 (CL434)
Measuring Instrument	Oscilloscope
Adjustment Element	RV401, RV404
Specified Value	A = $0.714 \pm 0.01$ V (NTSC) A = $0.700 \pm 0.01$ V (PAL) B = $280 \pm 10$ mV (NTSC) B = $300 \pm 10$ mV (PAL)

**Note 1:** Set "S VIDEO" mode with the INPUT SELECT button on the front panel.

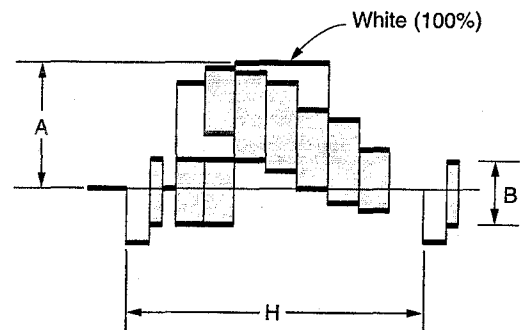
**Note 2:** Terminate the video output terminal using a 75  $\Omega$  resistor.

75  $\Omega$  resistor (Parts code: 1-247-804-11)

##### Adjusting method:

- 1) Set the Y signal level (A) to the specified value using RV401.
- 2) Set the burst signal level (B) to the specified value using RV404.

##### For NTSC model



##### For PAL model

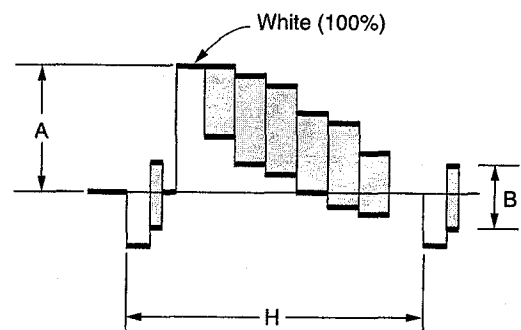


Fig. 5-3-14.

### 3. Analog E-E Y Signal Output Level Check (VA-102 Board)

Mode	E-E
Signal	Color bar (S VIDEO input) (Note 1)
Measurement Point	Pin ③ of CN401 (CL436)
Measuring Instrument	Oscilloscope
Specified Value	A = $0.714 \pm 0.02$ V (NTSC) A = $0.700 \pm 0.02$ V (PAL)

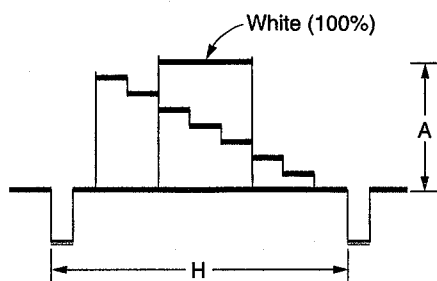
**Note 1:** Set "S VIDEO" mode with the INPUT SELECT button on the front panel.

**Note 2:** Terminate the Y signal terminal of the S video output terminal using a 75  $\Omega$  resistor.  
75  $\Omega$  resistor (Parts code: 1-247-804-11)

#### Checking method:

- 1) Check that the Y signal level (A) is the specified value.

#### For NTSC model



#### For PAL model

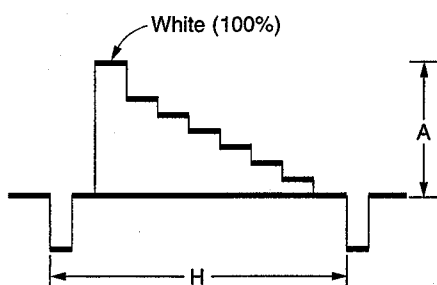


Fig. 5-3-15.

### 4. Analog E-E Chroma Signal Output Level Check (VA-102 Board)

Mode	E-E
Signal	Color bar (S VIDEO input) (Note 1)
Measurement Point	Pin ⑪ of IC401 (CL435)
Measuring Instrument	Oscilloscope
Specified Value	A = $286 \pm 20$ mV (NTSC) A = $300 \pm 20$ mV (PAL)

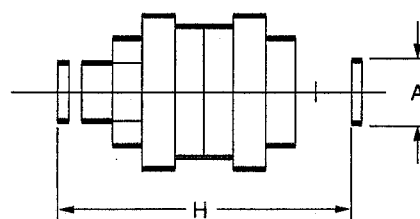
**Note 1:** Set "S VIDEO" mode with the INPUT SELECT button on the front panel.

**Note 2:** Terminate the Chroma signal terminal of the S video output terminal using a 75  $\Omega$  resistor.  
75  $\Omega$  resistor (Parts code: 1-247-804-11)

#### Checking method:

- 1) Check that the burst signal level (A) is the specified value.

#### For NTSC model



#### For PAL model

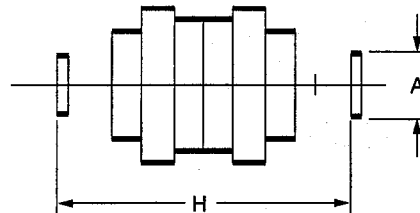


Fig. 5-3-16.

## 5. Decoder VXO Freerunning Frequency Adjustment (VA-102 Board)

Mode	E-E
Signal	Color bar (S VIDEO input) (Note 2) (Chroma signal OFF)
Measurement Point	TP201 (CL210)
Measuring Instrument	Frequency counter
Adjustment Element	CT201
Specified Value	$f = 3579545 \pm 30 \text{ Hz}$ (NTSC) $f = 4433618 \pm 20 \text{ Hz}$ (PAL)

**Note 1:** Connect the frequency counter via high input impedance equipment such as an oscilloscope.

**Note 2:** Set "S VIDEO" mode with the INPUT SELECT button on the front panel.

### Adjusting method:

- 1) Set the VXO OSC frequency (f) to the specified value using CT201.

## 6. Video Input Y/C Separation Adjustment (VA-102 Board)

### (1) Y Signal Output Level Adjustment

Mode	E-E
Signal	Color bar (VIDEO input) (Note 1)
Measurement Point	Pin ① of IC202 (CL202)
Measuring Instrument	Oscilloscope
Adjustment Element	RV203
Specified Value	$A = 0.714 \pm 0.01 \text{ V}$ (NTSC) $A = 0.700 \pm 0.01 \text{ V}$ (PAL)

**Note 1:** Set "VIDEO" mode with the INPUT SELECT button on the front panel.

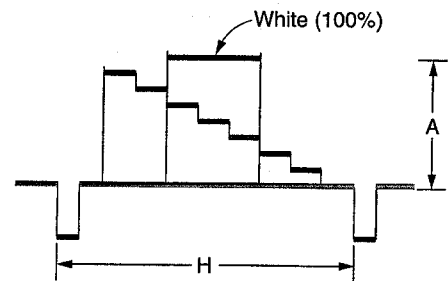
**Note 2:** Terminate the video output terminal using a 75  $\Omega$  resistor.

75  $\Omega$  resistor (Parts code: 1-247-804-11)

### Adjusting method:

- 1) Set the Y signal level (A) to the specified value using RV203.

### For NTSC model



### For PAL model

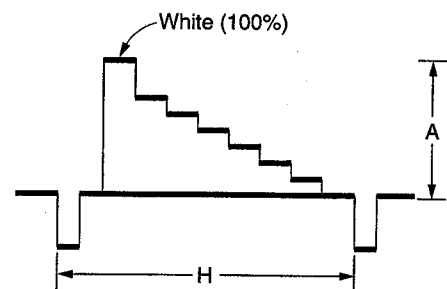


Fig. 5-3-17.



## (2) Chroma Signal Output Level Adjustment

Mode	E-E
Signal	Color bar (VIDEO input) (Note 1)
Measurement Point	Emitter of Q202 (CL203)
Measuring Instrument	Oscilloscope
Adjustment Element	RV201
Specified Value	A = $286 \pm 10$ mV (NTSC) A = $300 \pm 10$ mV (PAL)

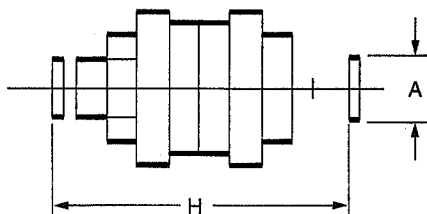
**Note 1:** Set "VIDEO" mode with the INPUT SELECT button on the front panel.

**Note 2:** Terminate the video output terminal using a 75  $\Omega$  resistor.  
75  $\Omega$  resistor (Parts code: 1-247-804-11)

### Adjusting method:

1) Set the burst signal level (A) to the specified value using RV201.

### For NTSC model



### For PAL model

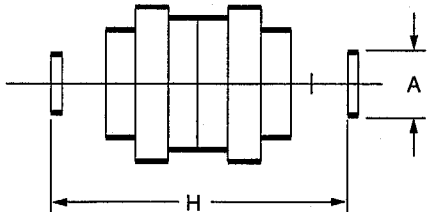


Fig. 5-3-18.

## 7. Decoder HUE Adjustment (VA-102 Board)

Mode	E-E
Signal	Color bar (S VIDEO input) (Note 1)
Measurement Point	Pin ⑧ of IC102 (CL144)
Measuring Instrument	Oscilloscope
Adjustment Element	RV207
Specified Value	A = B = C

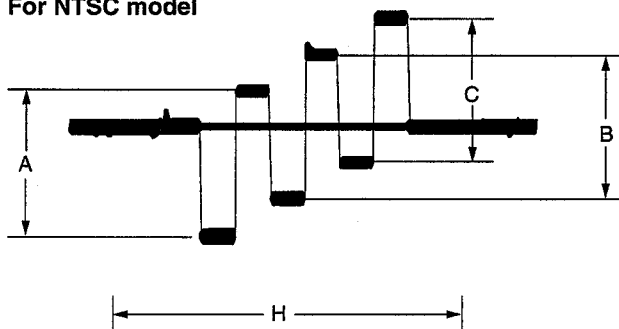
**Note 1:** Set data: 00 to page: 5, address: 38

**Note 2:** Set "S VIDEO" mode with the INPUT SELECT button on the front panel.

### Adjusting method:

1) Set the amplitude (A), (B), (C) to the same level using RV207.

### For NTSC model



### For PAL model

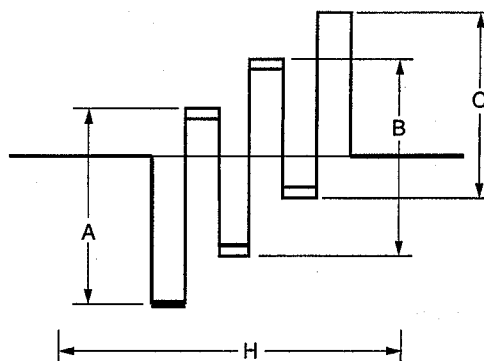


Fig. 5-3-19.

## 8. REC Y Level Adjustment (VA-102 Board)

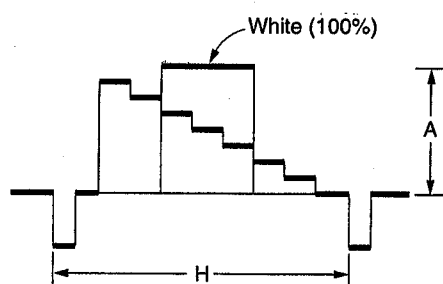
Mode	E-E
Signal	Color bar (VIDEO input) (Note 1)
Measurement Point	Pin ⑫ of IC102 (CL142)
Measuring Instrument	Oscilloscope
Adjustment Element	RV205
Specified Value	$A = 1.55 \pm 0.02 \text{ V}$

**Note 1:** Set "VIDEO" mode with the INPUT SELECT button on the front panel.

### Adjusting method:

- 1) Set the Y signal level (A) to the specified value using RV205.

### For NTSC model



### For PAL model

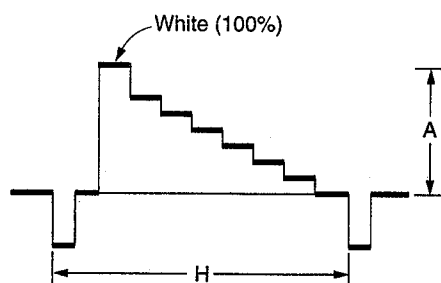


Fig. 5-3-20.

## 9. REC CR Level Adjustment (VA-102 Board)

Mode	E-E
Signal	Color bar (VIDEO input) (Note 1)
Measurement Point	Pin ⑩ of IC102 (CL143)
Measuring Instrument	Oscilloscope
Adjustment Element	RV204
Specified Value	$A = 1.25 \pm 0.02 \text{ V (NTSC)}$ $A = 1.20 \pm 0.02 \text{ V (PAL)}$

**Note 1:** Set "VIDEO" mode with the INPUT SELECT button on the front panel.

### Adjusting method:

- 1) Set the CR signal level (A) to the specified value using RV204.

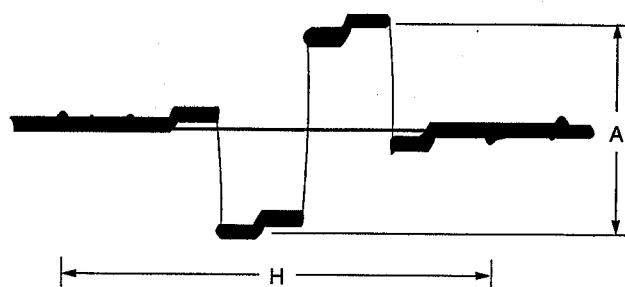


Fig. 5-3-21.

## 10. REC CB Level Adjustment (VA-102 Board)

Mode	E-E
Signal	Color bar (VIDEO input) (Note 1)
Measurement Point	Pin ⑧ of IC102 (CL144)
Measuring Instrument	Oscilloscope
Adjustment Element	RV206
Specified Value	$A = 1.20 \pm 0.02 \text{ V}$

**Note 1:** Set "VIDEO" mode with the INPUT SELECT button on the front panel.

### Adjusting method:

- 1) Set the CB signal level (A) to the specified value using RV206.

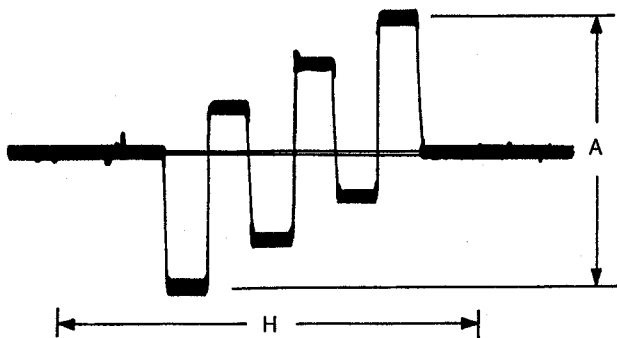


Fig. 5-3-22.

## 11. Encoder Freerunning Frequency Adjustment (VA-102 Board)

Mode	E-E
Signal	Color bar (S VIDEO input) (Note 2)
Measurement Point	TP401 (CL426)
Measuring Instrument	Frequency counter
Adjustment Element	CT401
Specified Value	$f = 14318182 \pm 100\text{Hz}$ (NTSC) $f = 17734475 \pm 100 \text{ Hz}$ (PAL)

**Note 1:** Connect the frequency counter via high input impedance equipment such as an oscilloscope.

**Note 2:** Set "S VIDEO" mode with the INPUT SELECT button on the front panel.

### Adjusting method:

- 1) Set the oscillation frequency (f) to the specified value using CT401.

### Measurement Point

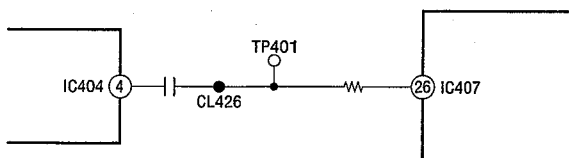


Fig. 5-3-23.

## 12. Playback Y Level Check (VA-102 Board)

Mode	Recording
Signal	DV input (Note 1)
Measurement Point	Pin ⑬ of CN401 (CL436)
Measuring Instrument	Oscilloscope
Specified Value	$A = 0.83 \pm 0.02 \text{ V}$ (NTSC) $A = 0.825 \pm 0.02 \text{ V}$ (PAL)

**Note 1:** Generate color bar signal with NTSC: DCR-VX1000/PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, and set data: 09 to page: 5, address: 02. After adjustment, be sure to return the data to "00".)

**Note 2:** Perform this check after confirming that the specified value in the following adjustment of the JC-19 board has been satisfied.

1. Playback Y Signal Level Adjustment.

### Checking method:

- 1) Check that the white (75%) signal level (A) is the specified value.

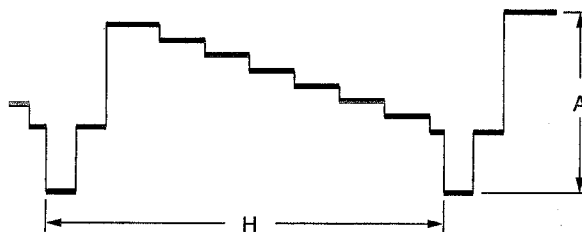


Fig. 5-3-24.

### 13. Playback Chroma Level Adjustment (VA-102 Board)

Mode	Recording
Signal	DV input (Note 1)
Measurement Point	Pin ⑪ of CN401 (CL435)
Measuring Instrument	Oscilloscope
Adjustment Element	RV406
Specified Value	A = $670 \pm 10$ mV (NTSC) A = $660 \pm 10$ mV (PAL)

**Note 1:** Generate color bar signal with NTSC: DCR-VX1000/PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, and set data: 09 to page: 5, address: 02. After adjustment, be sure to return the data to "00".)

**Note 2:** Perform this adjustment after confirming that the specified value in the following adjustment of the JC-19 board has been satisfied.

1. Playback CR Signal Level Adjustment.
2. Playback CB Signal Level Adjustment.

#### Adjusting method:

- 1) Set the red signal level (A) to the specified value using RV406.

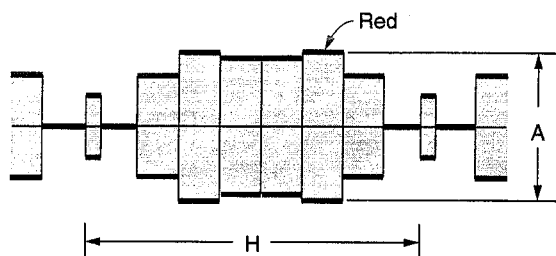


Fig. 5-3-25.

### 14. Playback Burst Level Adjustment (VA-102 Board) (PAL model only)

Mode	Recording
Signal	DV input (Note 1)
Measurement Point	Pin ⑪ of CN401 (CL435)
Measuring Instrument	Oscilloscope
Adjustment Element	RV402
Specified Value	A = $300 \pm 10$ mV (PAL)

**Note 1:** Generate color bar signal with NTSC: DCR-VX1000/PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, and set data: 09 to page: 5, address: 02. After adjustment, be sure to return the data to "00".)

**Note 2:** Perform this adjustment after confirming that the specified value in the following adjustment of the JC-19 board has been satisfied.

1. Playback CR Signal Level Adjustment.
2. Playback CB Signal Level Adjustment.

#### Adjusting method:

- 1) Set the burst signal level (A) to the specified value using RV402.

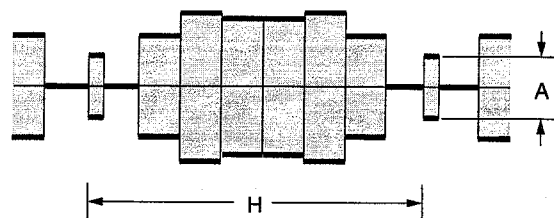


Fig. 5-3-26.

### 3-5-4. General Adjustments

#### 1. Y Output Level Adjustment (JC-19 Board)

Mode	E-E
Signal	Color bar (DV input) (Note 1)
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope
Adjustment Element	page: D, address: 36
Specified Value	A = $0.83 \pm 0.01$ V (NTSC) A = $0.823 \pm 0.01$ V (PAL)

**Note 1:** Generate color bar signal with NTSC: DCR-VX1000/PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, and set data: 09 to page: 5, address: 02. After adjustment, be sure to return the data to "00".

##### Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 36, change the data, adjust the Y signal level (A) to the specified value.
- 1) Select page: 0, address: 01, and set data: 00.



Fig. 5-3-27.

#### 2. Encoder R-Y Input Level Adjustment (JC-19 Board)

Mode	E-E
Signal	Color bar (DV input) (Note 1)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Element	page: D, address: 34
Specified Value	Phase: $104 \pm 2^\circ$ Gain : $95 \pm 5\%$

**Note 1:** Generate color bar signal with NTSC: DCR-VX1000/PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, and set data: 09 to page: 5, address: 02. After adjustment, be sure to return the data to "00".

##### Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Adjust the burst luminance point to the specified position using the PHASE and GAIN knobs of the vectorscope.
- 3) Select page: D, address: 34, change the data, adjust a red luminance point to the specified position.
- 4) Select page: 0, address: 01, and set data: 00.

##### For NTSC model

☐: FOR ENCODER R-Y INPUT LEVEL ADJUSTMENT

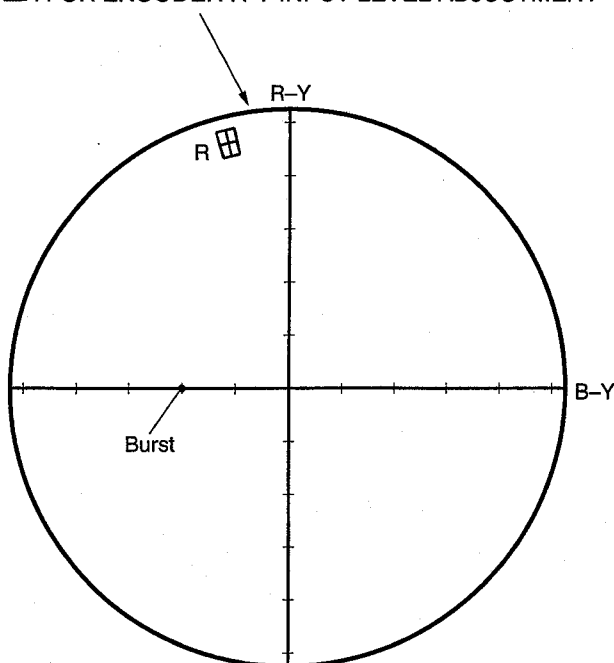


Fig. 5-3-28.

##### For PAL model

☐: FOR ENCODER R-Y INPUT LEVEL ADJUSTMENT

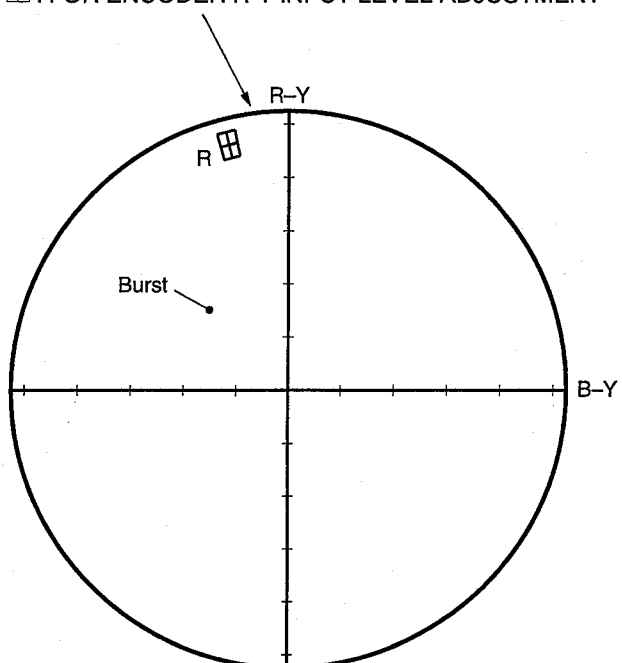


Fig. 5-3-29.

### 3. Encoder B-Y Input Level Adjustment (JC-19 Board)

Mode	E-E
Signal	Color bar (DV input) (Note 1)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Element	page: D, address: 35
Specified Value	Phase: $348 \pm 2^\circ$ Gain : $66 \pm 5\%$

**Note 1:** Generate color bar signal with NTSC: DCR-VX1000/PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, and set data: 09 to page: 5, address: 02. After adjustment, be sure to return the data to "00".

#### Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Adjust the burst luminance point to the specified position using the PHASE and GAIN knobs of the vectorscope.
- 3) Select page: D, address: 35, change the data, adjust a blue luminance point to the specified position (inside of thick frame).
- 4) Select page: 0, address: 01, and set data: 00.

### 4. Decoder HUE Input Adjustment (JC-19 Board)

Mode	E-E
Signal	Color bar (S VIDEO input) (Note 1)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Element	RV207
Specified Value	Phase: $104 \pm 1^\circ$ Gain : $95 \pm 5\%$

**Note 1:** Set "S VIDEO" mode with the INPUT SELECT button on the front panel.

#### Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 2, address: 10, and set data: 20.
- 3) Adjust the burst luminance point to the specified position using the PHASE and GAIN knobs of the vectorscope.
- 4) Adjust RV107 so that a red luminance point comes to the specified position (inside of thick frame). At this time, confirm that other color luminance points are inside each phase specified frame ( $\pm 2$ ).
- 5) Select page: 2, address: 10, and set data: 00.
- 4) Select page: 0, address: 01, and set data: 00.

**Note:** When a red luminance point and a blue luminance point are not at the specified positions, adjust RV204 and RV206 so that they come to the specified positions respectively.

For NTSC model

☐: FOR DECODER HUE INPUT ADJUSTMENT

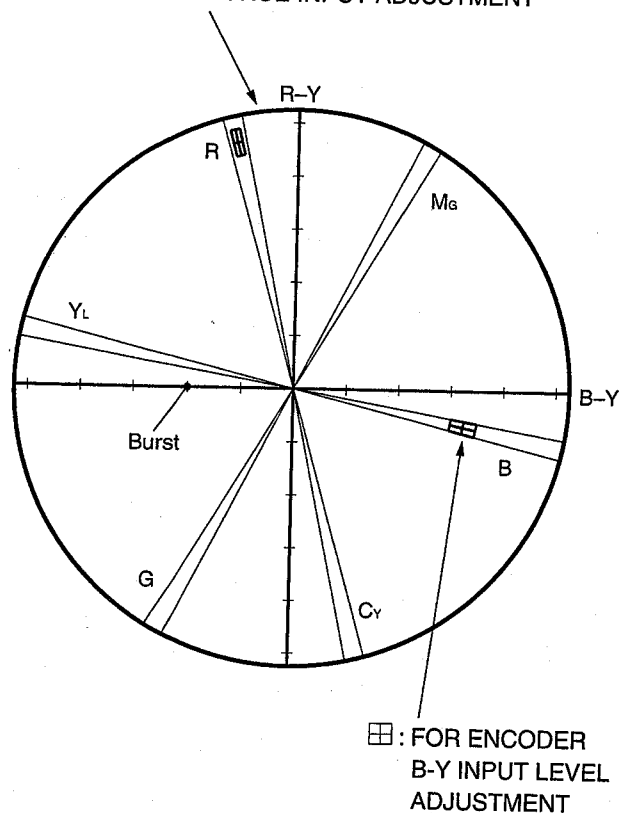


Fig. 5-3-30.

For PAL model

☐: FOR DECODER HUE INPUT ADJUSTMENT

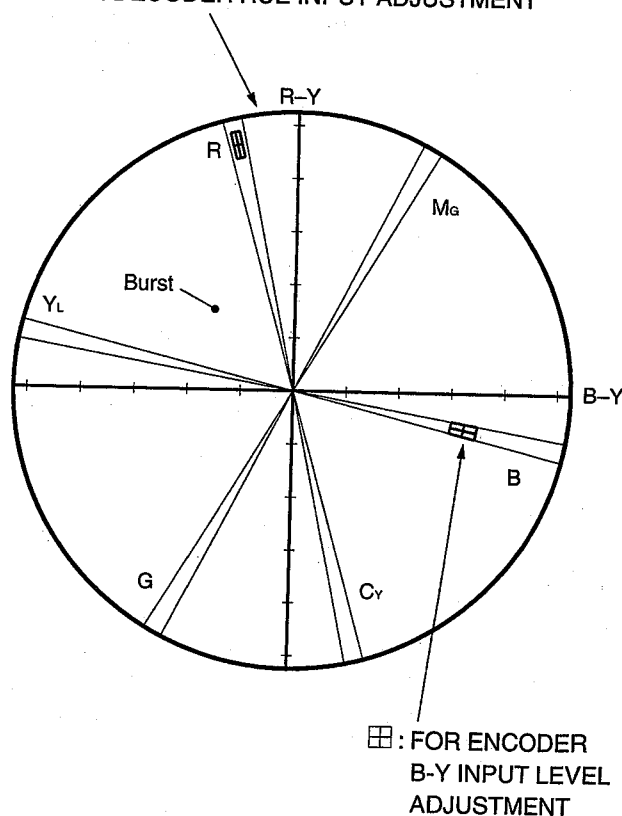


Fig. 5-3-31.

## 5. Battery Down Adjustment and Confirmation

Mode	Stop
Signal	Any
Test point	Displayed data on page 5, address 2A (LCD display of the adjusting remote commander)
Measuring Instrument	Adjusting remote commander
Adjustment page	E
Adjustment address	1D, 1E, 1F

**Note 1:** Make sure that the BEEP on the Menu screen is set to "ON".

### Connection of Equipment:

Connect a regulated power supply and a digital voltmeter to the DC IN terminal.

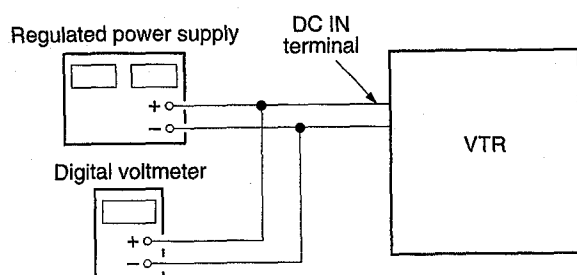


Fig. 5-3-32.

### Adjusting Method:

- 1) Adjust the output voltage of regulated power supply so that a digital voltmeter displays  $11.0 \pm 0.05$  V.
- 2) Select page: 5, address: 2A, and read displayed data on the adjusting remote commander, and assume it as  $D_0$ .
- 3) Select page: E, address: 1D, set data:  $D_0$ , and press the PAUSE button on the adjusting remote commander.
- 4) Convert " $D_0$ " read in 2) to decimal notation, and obtain  $D_0'$ .
- 5) Calculate  $D_1'$ ,  $D_2'$  using the following equations (decimal notation calculation).
 
$$D_1' = D_0' - 6$$

$$D_2' = D_0' - 12$$
- 6) Convert  $D_1'$  to hexadecimal notation, and obtain  $D_1$ .
- 7) Select page: E, address: 1E, set data:  $D_1$ , and press the PAUSE button on the adjusting remote commander.
- 8) Convert  $D_2'$  to hexadecimal notation, and obtain  $D_2$ .
- 9) Select page: E, address: 1F, set data:  $D_2$ , and press the PAUSE button on the adjusting remote commander.
- 10) Confirm the display and operation of the fluorescent display tube, when the voltage input from DC IN terminal is lowered from 12 V.
 

Input of DC 12 V : Normal operation  
 Input of DC 10.8 V : Beep sounds and "dc Lo" is displayed.  
 Input of DC 10.3 V : Beep sounds and the standby mode is activated after 2 seconds.
- 11) Further lower the voltage, and check the voltage when STBY indicator (red LED) turns off.
 

Specification: The power relay must turn off when  $V_{dc} = 9.0$  V – 9.5 V.
- 12) On the contrary, raise the voltage, and check the voltage when STBY indicator (red LED) turns on.
 

Specification: The power relay must turn on when  $V_{dc} = 10.5$  V – 11.0 V.



### 3-5-5. BIST Check

#### 1. Playback System Check (JC-19, RP-228 Boards)

- 1) Connect the adjusting remote commander to the LANC terminal, and turn the HOLD switch ON.
- 2) Playback the BIST check tape.

#### IC411(D1) Playback System Check

- 3) Select page: 4, address: 11, set data: 04, and press the PAUSE button.
- 4) Select page: 4, address: 11, set data: 00, and press the PAUSE button.
- 5) Select page: 4, address: 13, set data: 03, and press the PAUSE button.  
(Data automatically returns to "00")
- 6) If IC411 (D1) → IC401 (U1) playback system is normal, the following data are displayed on page: 4, addresses: 14, 15.

Page	Address	Data
4	15	E5
4	14	11

- 7) If IC411(D1) → IC701 (IND1) playback system is normal, the following data are displayed on page: 4, addresses: 16, 17.

Page	Address	Data
4	17	C0 or BA
4	16	6E or 04

- 8) If IC411(D1) → IC805 (A1) playback system is normal, the following data are displayed on page: 4, addresses: 18, 19.

Page	Address	Data
4	19	33 or B2
4	18	59 or 19

#### IC805 (A1) Playback System Check

- 9) Select page: 4, address: 11, set data: 10, and press the PAUSE button.
- 10) Select page: 4, address: 11, set data: 00, and press the PAUSE button.
- 11) Select page: 4, address: 13, set data: 04, and press the PAUSE button.  
(Data automatically returns to "00")
- 12) If IC805 (A1) playback system is normal, the following data are displayed on page: 4, addresses: 14, 15.

Page	Address	Data
4	15	7B
4	14	B5

#### IC401 (U1) Playback System Check

- 13) Select page: 4, address: 11, set data: 08, and press the PAUSE button.
- 14) Select page: 4, address: 42, set data: 01, and press the PAUSE button.
- 15) Select page: 4, address: 13, set data: 07, and press the PAUSE button.  
(Data automatically returns to "00")
- 16) Select page: 4, address: 42, set data: 00, and press the PAUSE button.
- 17) Select page: 4, address: 11, set data: 00, and press the PAUSE button.

- 18) If IC401 (U1) → IC200 (S1) playback system is normal, the following data are displayed on page: 4, addresses: 14, 15.

Page	Address	Data
4	15	1E
4	14	F2

- 19) If IC411 (D1) → IC401 (U1) playback system is normal, the following data are displayed on page: 4, addresses: 16, 17.

Page	Address	Data
4	17	D1
4	16	61

- 20) Perform "Record System Check" successively.

## 2. Record System Check

**Note:** Perform "Record System Check" successively (with BIST check tape in playback status)

- 1) Enter the following data.

**Note:** Press the PAUSE button each time the data is set.

Page	Address	Data
4	41	01
4	0F	02
4	0E	01
4	40	01
4	0F	0A
4	40	00
4	40	01
4	0F	0E
4	40	00
4	40	01
4	0F	8E
4	40	00

- 2) With the HOLD switch on adjusting remote commander turned ON, eject the BIST check tape, and insert a record tape instead.
- 3) Set the REC mode.

### IC401 (U1) Record System Check

- 4) Select page: 4, address: 11, set data: 08, and press the PAUSE button.
- 5) Select page: 4, address: 42, set data: 01, and press the PAUSE button.
- 6) Select page: 4, address: 13, set data: 07, and press the PAUSE button.  
(Data automatically returns to "00".)
- 7) Select page: 4, address: 42, set data: 00, and press the PAUSE button.
- 8) Select page: 4, address: 11, set data: 00, and press the PAUSE button.
- 9) If IC401 (U1) → IC411 (D1) record system is normal, the following data are displayed on page: 4, addresses: 16, 17.

Page	Address	Data
4	17	05
4	16	80

### IC411 (D1) Record System Check

- 10) Select page: 3, address: 01, set data: 0D, and press the PAUSE button.
- 11) Select page: 4, address: 1C, set data: FF, and press the PAUSE button.
- 12) Select page: 4, address: 11, set data: 04, , and press the PAUSE button.
- 13) Select page: 4, address: 11, set data: 00, and press the PAUSE button.
- 14) Select page: 4, address: 13, set data: 03, and press the PAUSE button.  
(Data automatically returns to "00")
- 15) If IC401 (U1) → IC411 (D1) record system is normal, the following data are displayed on page: 4, addresses: 14, 15.

Page	Address	Data
4	15	05
4	14	80

- 16) If IC411 (D1) → IC701 (IND1) record system is normal, the following data are displayed on page: 4, addresses: 16, 17.

Page	Address	Data
4	17	E6
4	16	BC

- 17) If IC805 (A1) → IC411 (D1) record system is normal, the following data are displayed on page: 4, addresses: 18, 19.

Page	Address	Data
4	19	76
4	18	B9

- 18) If IC411 (D1) → IC774 (DX) record system is normal, the following data are displayed on page: 4, addresses: 1A, 1B.

Page	Address	Data
4	1B	4E
4	1A	11

3-6. AUDIO SYSTEM ADJUSTMENTS

Unless specified otherwise, set the switches as follows.  
AUDIO NODE (Menu display) ..... Fs48k  
INPUT SELECT ..... VIDEO  
AUDIO MONITOR ..... CH-1/2  
REC LEVEL L, R ..... Center  
**Note 1:** Set AUDIO MODE at the SET UP menu of the menu screen.

Connection of Equipment

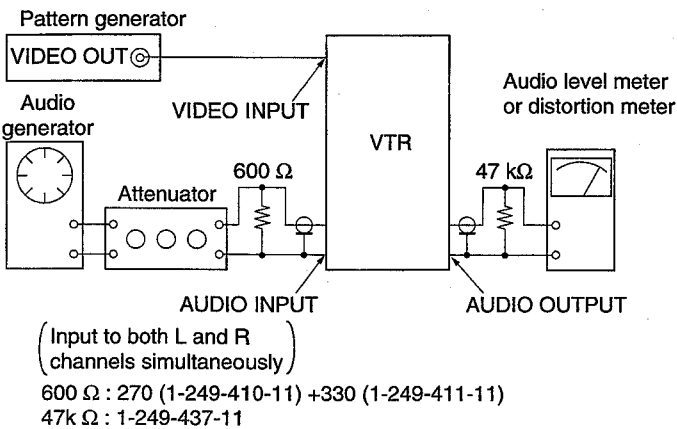


Fig. 5-3-33.

1. Playback Level/Indicator Check

Mode	Playback
Signal	Audio check reference tape
Measurement point	Audio output terminal (Left and Right)
Measuring Instrument	Audio level meter and frequency counter
Specified Value	32 kHz mode: 1 kHz signal should be output 48 kHz mode: 1 kHz signal level should be +6 ± 2 dBv (+8.2 ± 2 dBs) 44.1 kHz mode EMP ON: 7.35 kHz signal level is -6 ± 1 dB for 1 kHz signal level in 48 kHz mode 44.1 kHz mode EMP ON: 7.35 kHz signal level is 0 ± 1 dB for 1 kHz signal level in 48 kHz mode NS AUDIO lamp should be lit

**Note:** 0 dBv = 1 Vrms  
0 dBs = 0.775 Vrms

Checking method:

- 1) Check that the playback signal level satisfies the specified value.

2. E-E Level Check

Mode	E-E (LINE 1 input)
Signal	Audio: 1 kHz -6 dBv (-3.8 dBs) Signal Audio input terminal (Left and Right) Video: Color bar signal Video input terminal
Measurement point	Audio output terminal (Left and Right)
Measuring Instrument	Audio level meter
Specified Value	-6 ± 3 dBv (-3.8 ± 3 dBs)

Checking method:

- 1) Check that the 1 kHz signal level satisfies the specified value.  
2) Check that the number in the segment of the level meter (fluorescent display tube) that is lit is between 8 and 12 for both the L and R channels.

3. Recording/Playback Check (Audio Lock Mode)

Mode	Recording/Playback (LINE input)
Signal	Audio: no signal Video: Color bar Video input terminal
Measurement point	Display data of page: 5, address: 00 of the adjusting remote commander
Measuring Instrument	
Specified Value	① After playback pause, the changes in the data after 5 frames have been sent continuously must be in the following order. "D4" → "D6" → "D6" → "D6" → "D6" → "D4" (NTSC) "D8" → "D8" → "D8" → "D8" → "D8" → "D8" (PAL) ② NS AUDIO lamp should be lit.

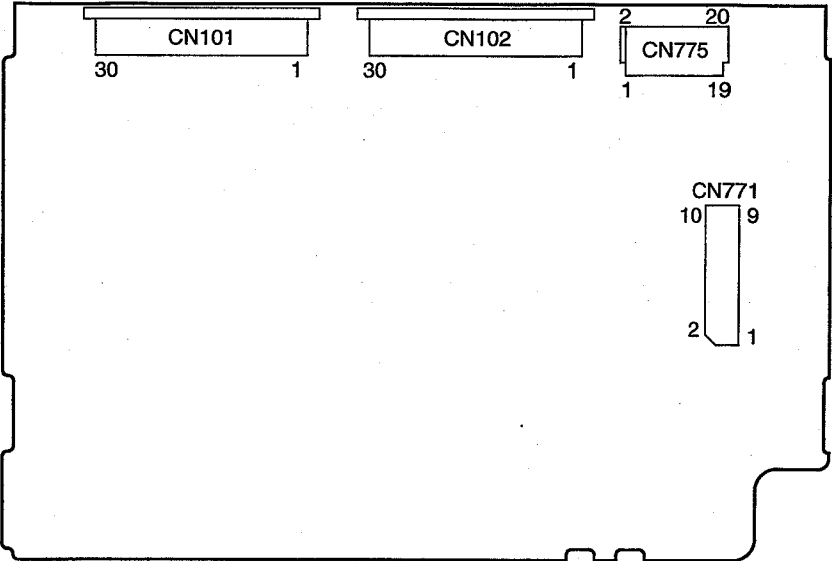
**Note 1:** Check that the AUDIO MODE (menu screen) is Fs48k.  
**Note 2:** Send the frames using front panel button.

Checking method:

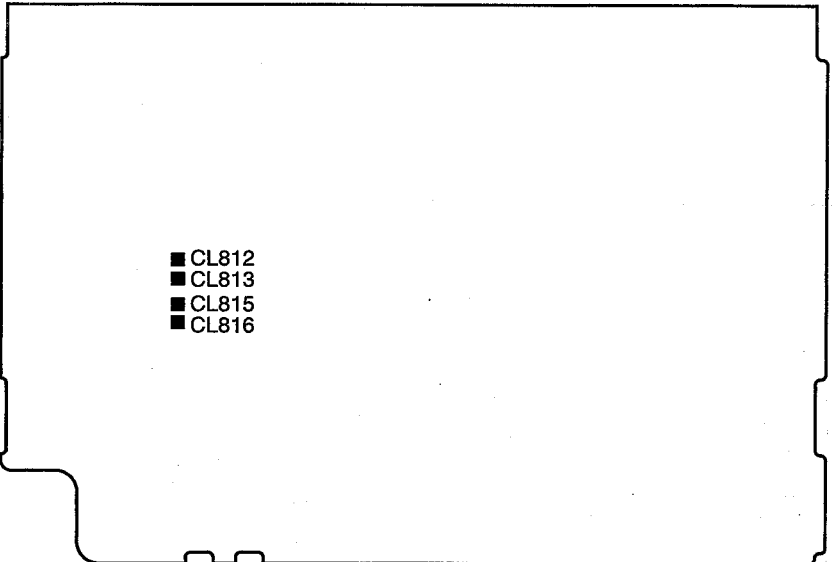
- 1) With no audio signal being input, record the color bar signal for about 1 minute.  
2) Playback the recorded part, and set the playback pause mode.  
3) Select page: 5, address: 00 using the adjusting remote commander.  
4) Send the frames, so that the display data for page: 5, address: 00 is D4. (NTSC)  
5) Send 5 frames continuously, and check that the display data of page: 5, address: 00 changes in the order specified.  
6) Exit the playback pause mode, playback the recorded part, and check that the NS AUDIO lamp (front panel) is off.

3-7. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

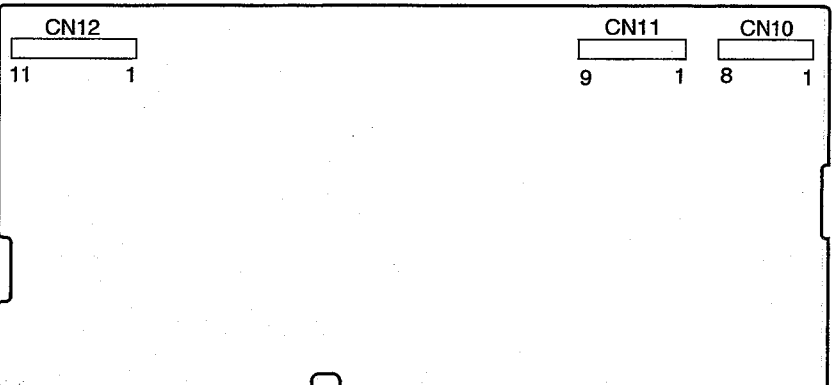
RP-228 BOARD (SIDE A)



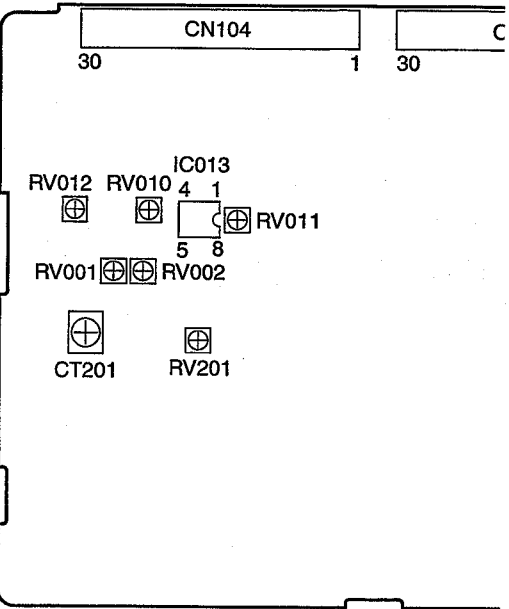
RP-228 BOARD (SIDE B)



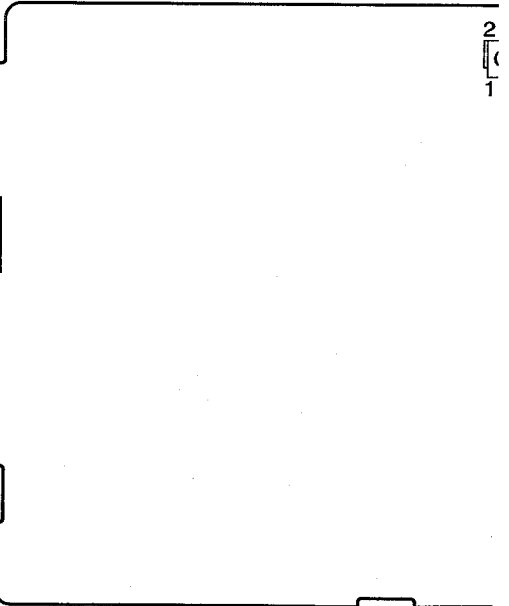
POWER BLOCK (U-2)



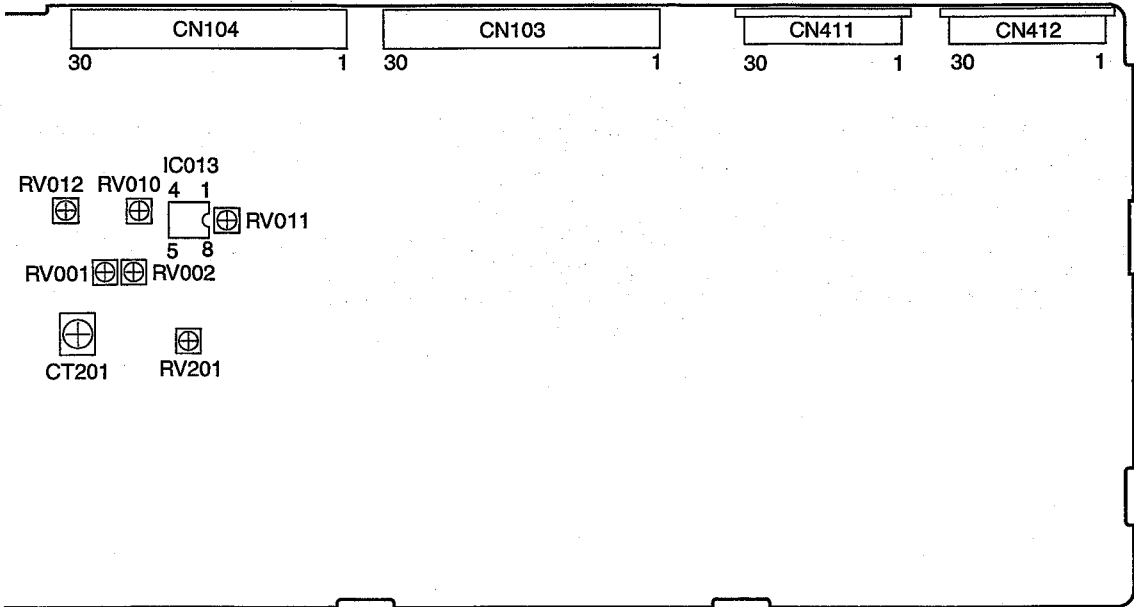
JC-19 BOARD (SIDE A)



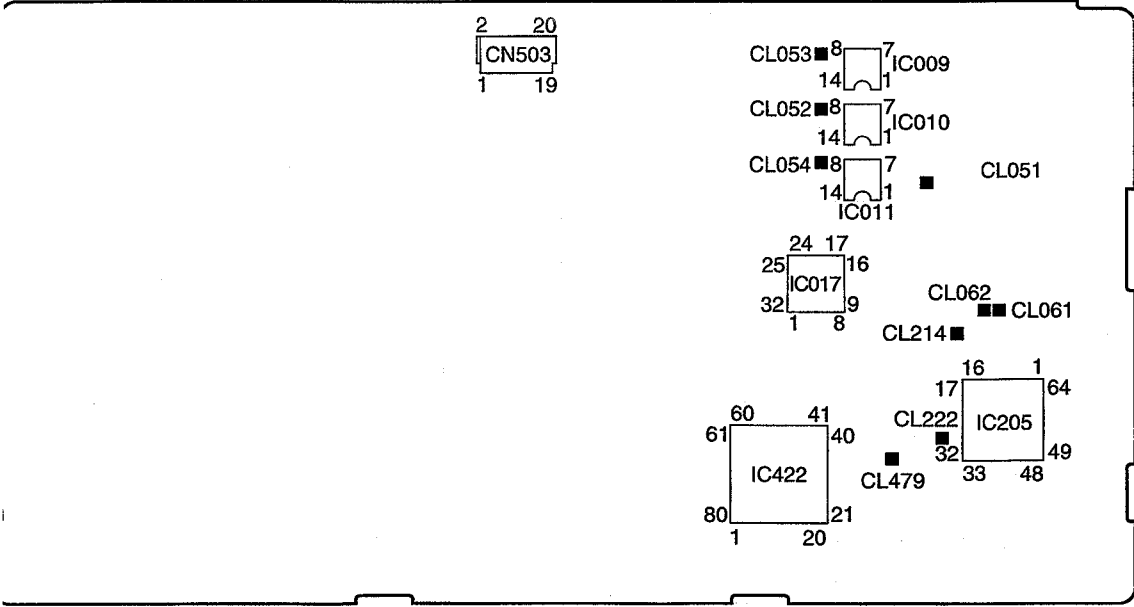
JC-19 BOARD (SIDE B)



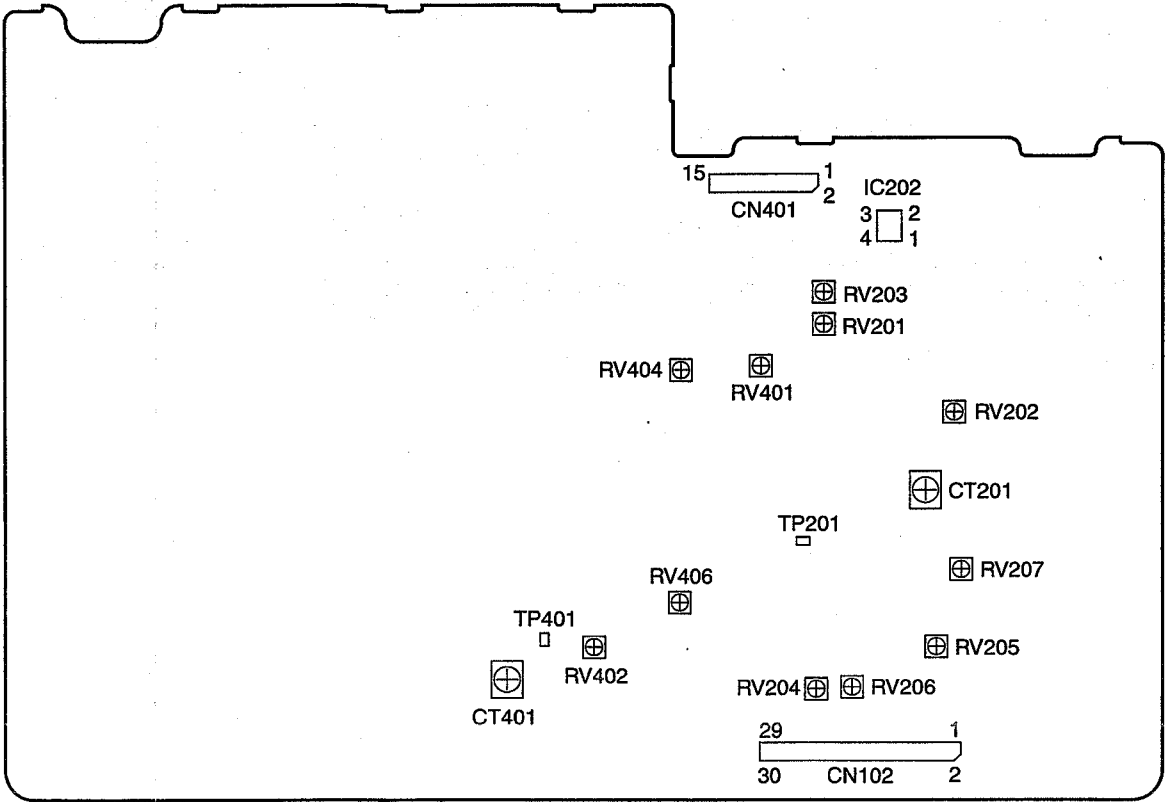
C-19 BOARD (SIDE A)



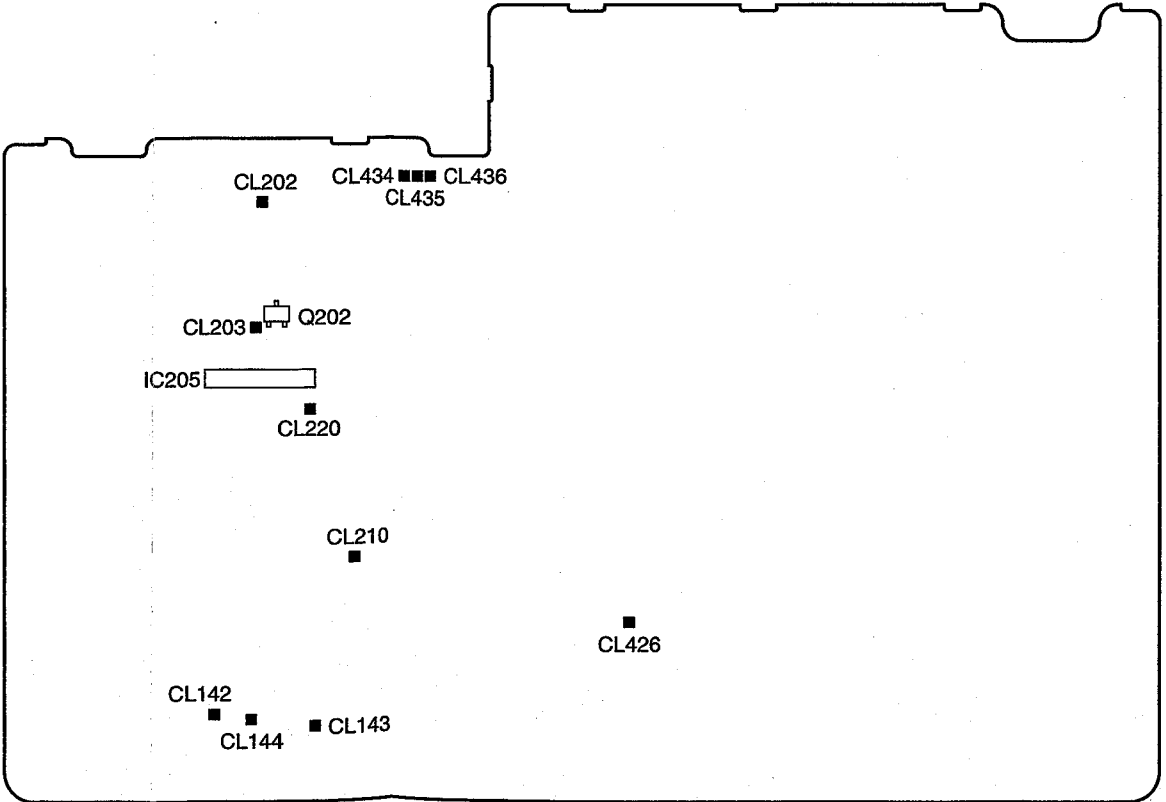
C-19 BOARD (SIDE B)



VA-102 BOARD (SIDE A)



VA-102 BOARD (SIDE B)



## SECTION 6 REPAIR PARTS LIST

### 6-1. EXPLODED VIEWS

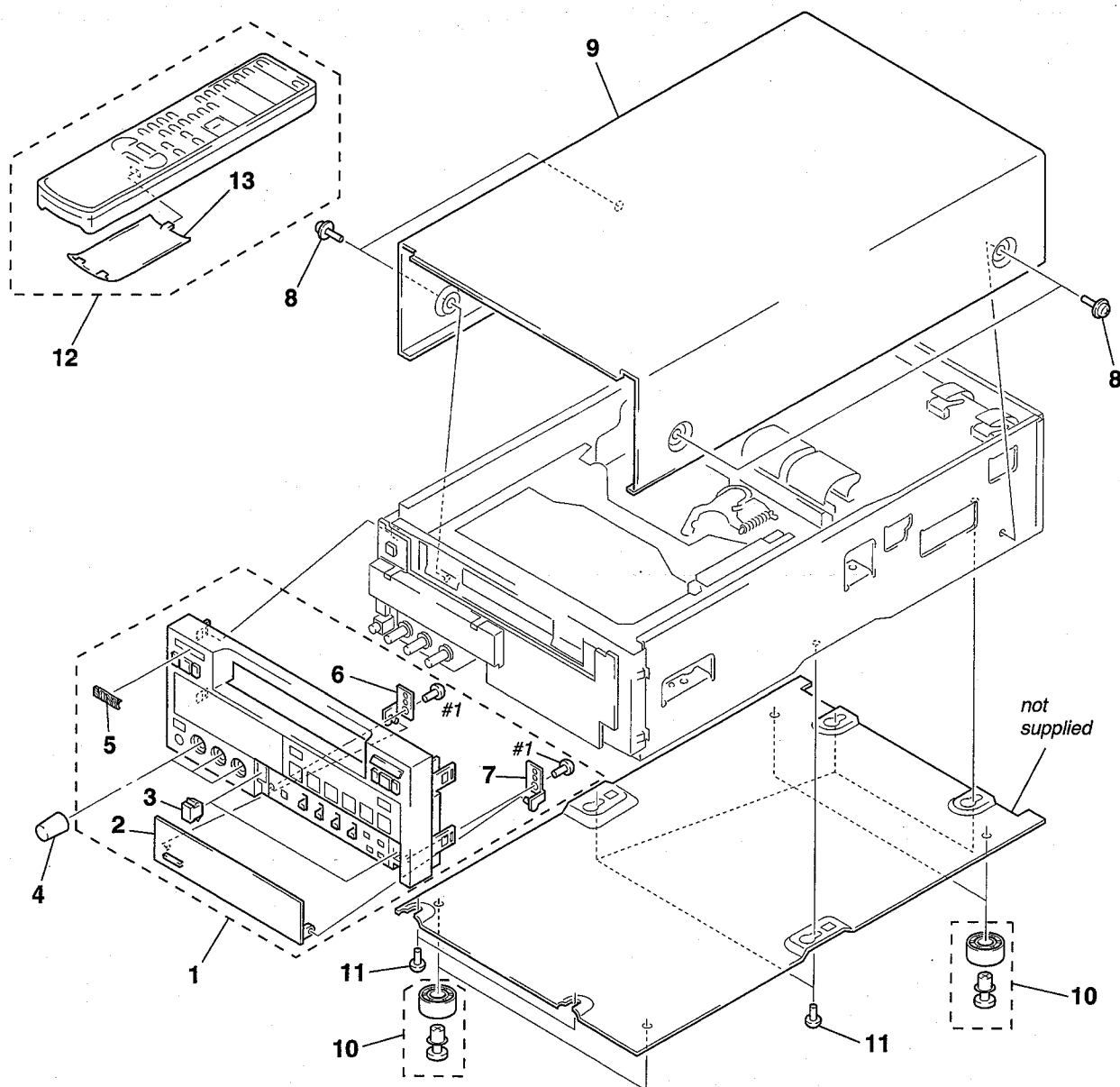
#### NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories are given in the last of the electrical parts list.

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

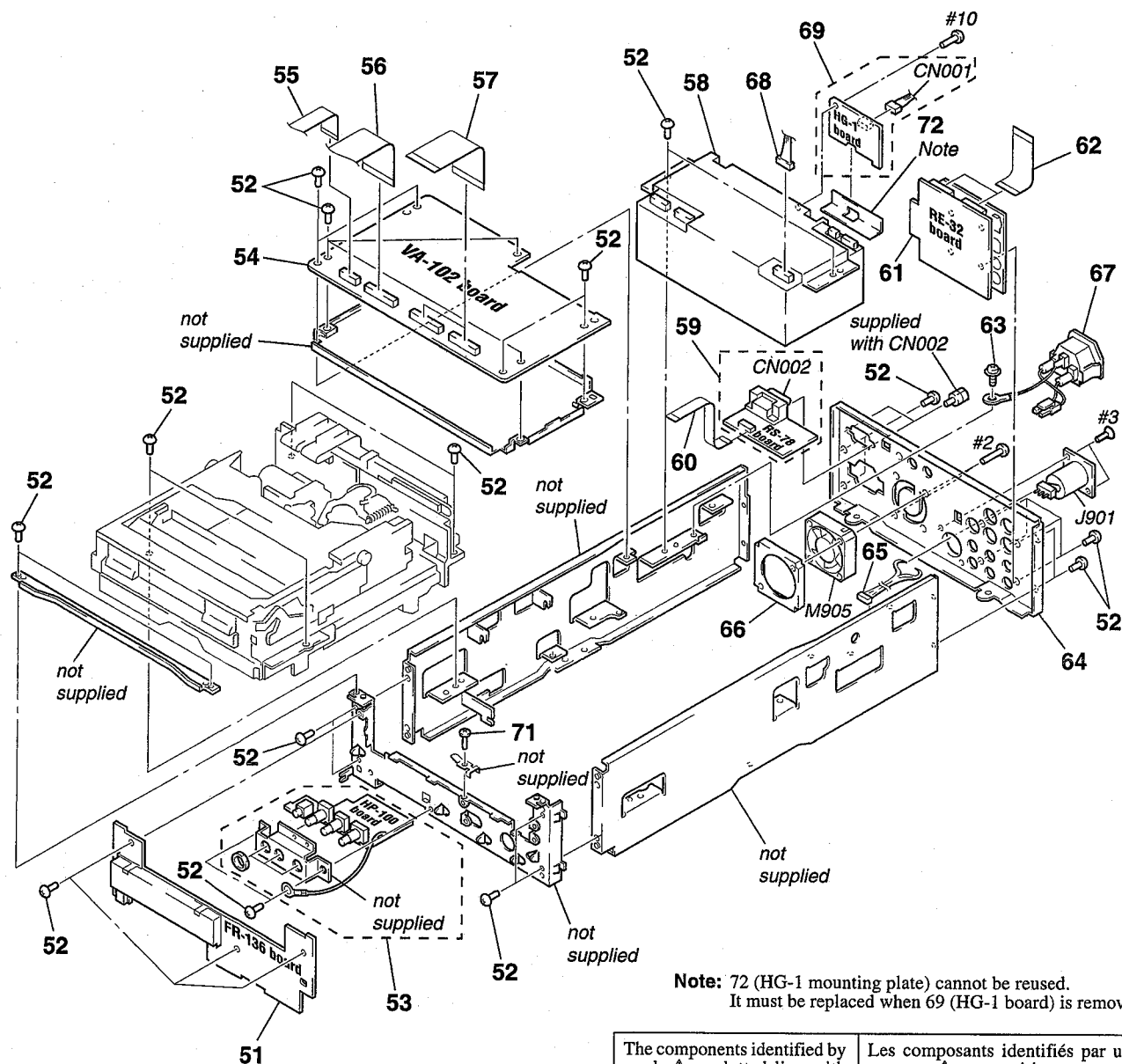
Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

#### 6-1-1. OVERALL ASSEMBLY



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	X-3950-023-1	PANEL ASSY, FRONT (DSR-20MD)		* 7	X-3948-056-1	HINGE (R) ASSY, DOOR	
1	X-3950-022-1	PANEL ASSY (P), FRONT (DSR-20MDP)		8	4-886-821-01	SCREW, M3 CASE	
2	X-3950-025-1	DOOR ASSY (DSR-20MD)		* 9	3-987-158-01	CASE, UPPER	
2	X-3950-024-1	DOOR ASSY (P) (DSR-20MDP)		10	3-987-171-01	FOOT (FF-004)	
3	3-950-280-01	MAGNET		11	3-970-608-41	SUMITITE (B3), +BV	
4	3-956-976-11	KNOB, ROTARY		12	1-475-693-11	REMOTE COMMANDER (RMT-DS20)	
5	4-942-567-01	EMBLEM (NO.4), SONY		13	3-708-923-01	LID, BATTERY CASE (for RMT-DSR20)	
* 6	X-3948-057-1	HINGE (L) ASSY, DOOR					

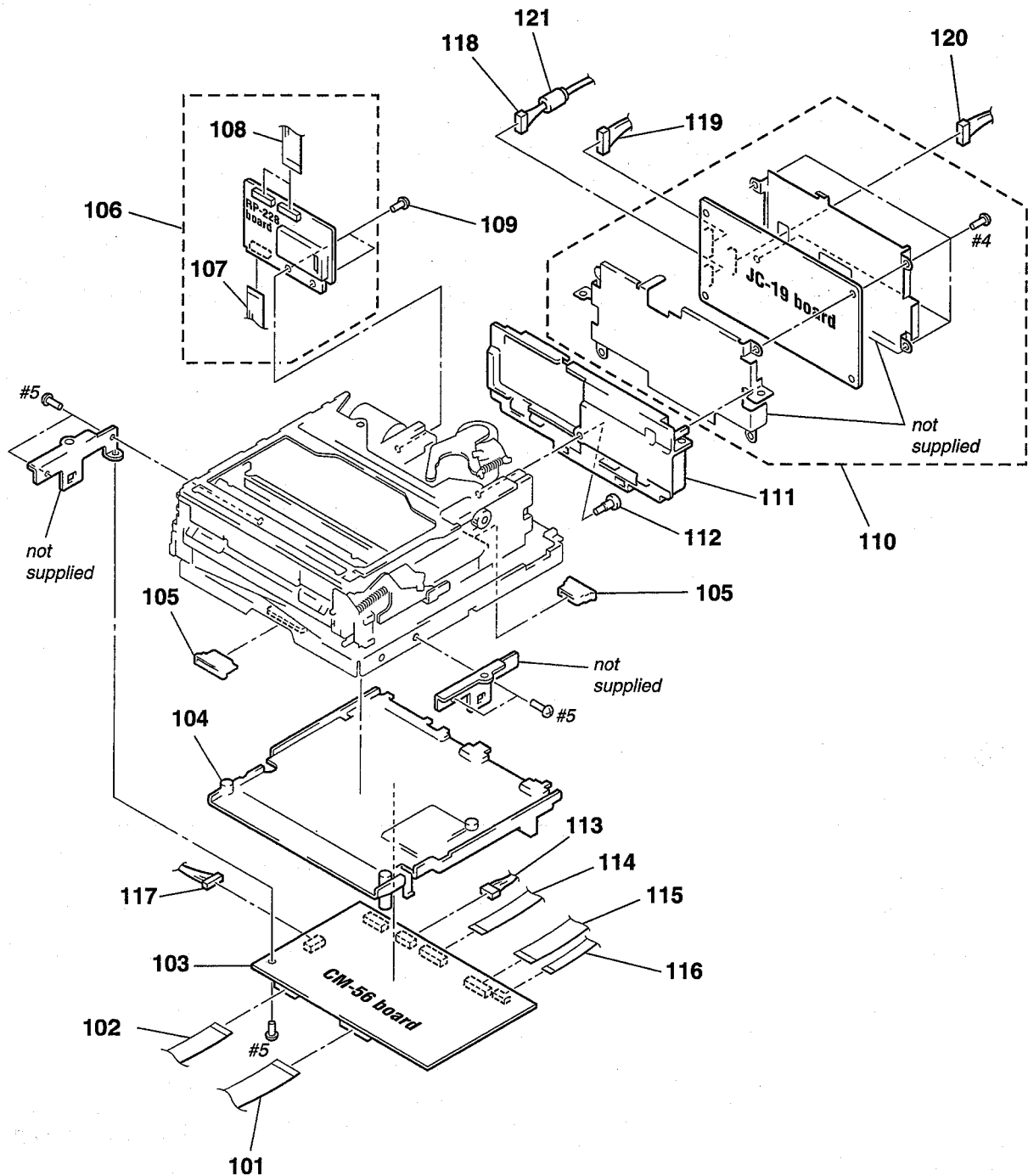
## 6-1-2. CHASSIS ASSEMBLY



<p>The components identified by mark <math>\Delta</math> or dotted line with mark <math>\Delta</math> are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque <math>\Delta</math> sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 51	A-7074-111-A	FR-136 BOARD, COMPLETE		63	3-975-291-01	SCREW (4X6)	
52	3-970-608-41	SUMITITE (B3), +BV		* 64	3-987-157-31	PANEL, REAR	
* 53	A-7073-471-A	HP-100 BOARD, COMPLETE		65	1-958-841-11	HARNESS (DP-73)	
* 54	A-7067-251-A	VA-102 BOARD, COMPLETE (DSR-20MDP)		66	3-945-562-01	BRACKET, FAN	
* 54	A-7067-250-A	VA-102 BOARD, COMPLETE (DSR-20MD)		$\Delta$ 67	1-958-585-11	HARNESS (AC-227)	
55	1-782-823-11	CABLE, FLAT (FVH-4)		68	1-958-059-11	HARNESS (VP-72)	
56	1-782-825-11	CABLE, FLAT (FVF-8)		* 69	A-7073-576-A	HG-1 BOARD, COMPLETE	
57	1-782-824-11	CABLE, FLAT (FVJ-7)		71	3-964-010-01	SCREW M2	
$\Delta$ 58	1-468-441-11	POWER BLOCK (U-1/U-2) (DSR-20MD)		* 72	3-050-330-01	BRACKET, HG-1	
$\Delta$ 58	1-468-442-11	POWER BLOCK (U-1/U-2) (DSR-20MDP)		CN001	1-958-813-11	HARNESS (DH-50)	
* 59	A-7073-472-A	RS-78 BOARD, COMPLETE		CN002	1-565-388-21	CONNECTOR, D-SUB 9P (REMOTE RS-232C)	
60	1-782-822-11	CABLE, FLAT (FVR-9)		J901	1-564-603-11	CONNECTOR (WITH DC SW) 4P	
* 61	A-7073-470-A	RE-32 BOARD, COMPLETE		M905	1-698-534-31	FAN, DC	
62	1-782-826-11	CABLE, FLAT (FVR-10)					

### 6-1-3. MD BLOCK ASSEMBLY



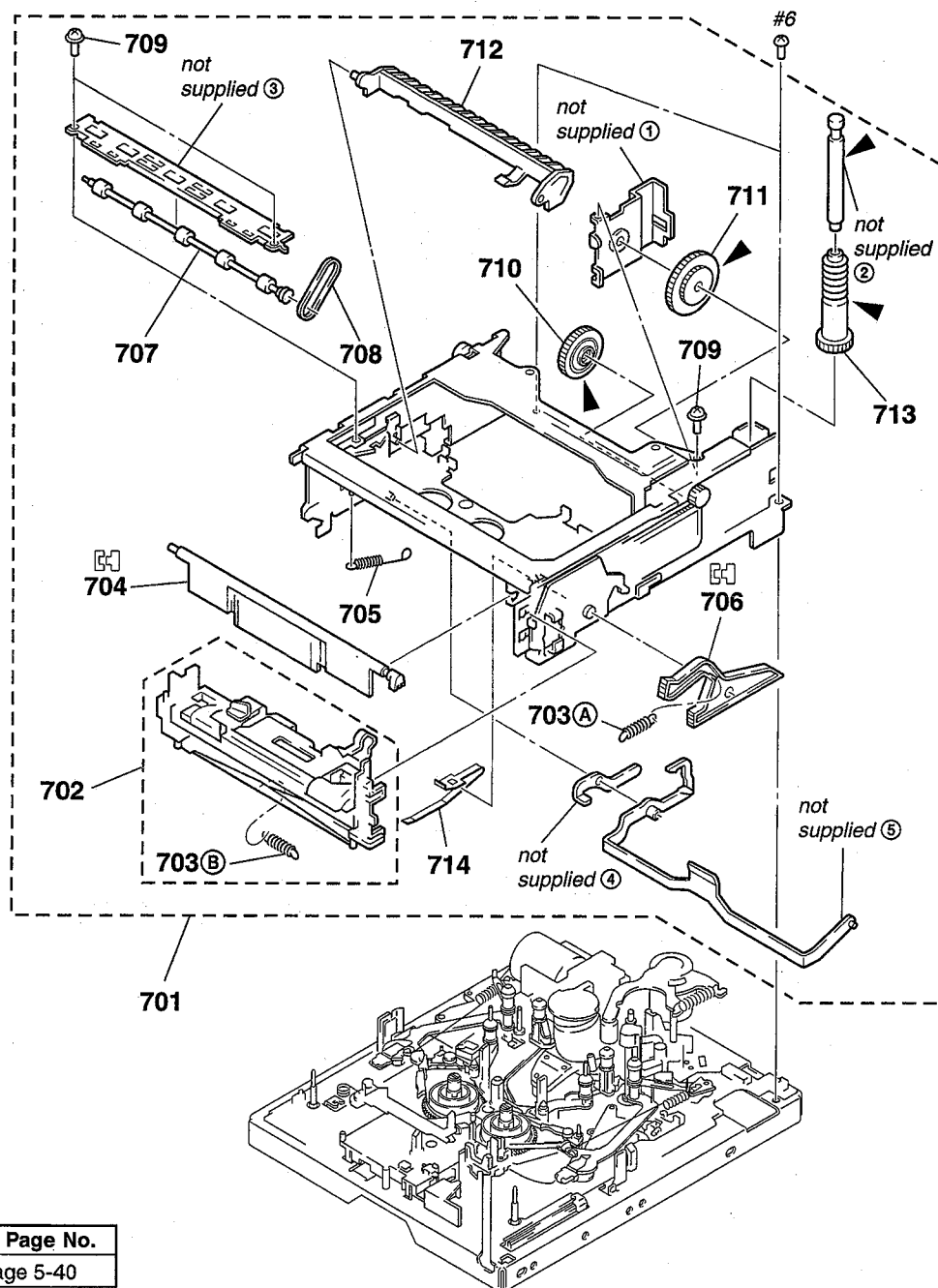
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	1-776-148-11	CABLE, FLAT (FCM-11) 15P		* 110	A-7067-130-A	JC-19 BOARD, COMPLETE (DSR-20MD)	
102	1-776-145-11	CABLE, FLAT (FCM-8) 16P		* 111	3-987-133-01	SUPPORT, JC	
* 103	A-7067-127-A	CM-56 BOARD, COMPLETE (DSR-20MDP)		112	3-056-130-01	SCREW (M3), STEP	
* 103	A-7067-131-A	CM-56 BOARD, COMPLETE (DSR-20MD)		113	1-958-288-11	HARNESS (CM-130)	
* 104	3-987-138-01	FRAME, MD		114	1-776-151-11	CABLE, FLAT (FCM-12) 14P	
105	1-764-137-11	CONNECTOR, TRANSLATION 15P		115	1-776-147-11	CABLE, FLAT (FCM-10) 15P	
* 106	A-7067-128-A	RP-228 BOARD, COMPLETE (DSR-20MDP)		116	1-776-146-11	CABLE, FLAT (FCM-9) 9P	
* 106	A-7067-132-A	RP-228 BOARD, COMPLETE (DSR-20MD)		117	1-958-057-11	HARNESS (CP-79)	
107	1-776-149-11	CABLE, FLEXIBLE FLAT 30P		118	1-958-061-11	HARNESS (VJ-103)	
108	1-783-376-11	CABLE, FLEXIBLE FLAT (FFC-245)		119	1-958-058-11	HARNESS (JP-55)	
109	3-732-817-01	SCREW (2X4.5), TAPPING		120	1-958-060-11	HARNESS (VJ-102)	
* 110	A-7067-126-A	JC-19 BOARD, COMPLETE (DSR-20MDP)		121	1-543-793-11	FILTER, CLAMP (FERRITE CORE)	



## 6-1-4. FL CASSETTE COMPARTMENT ASSEMBLY

### NOTE FOR INSTALLATION

- : Place for grease (SG-055G: 7-651-000-09)
- ⌌ : Take note of the position and specified direction.



not supplied	Ref. Page No.
①	Page 5-40
②	Page 5-40
③	Page 5-38
④	Page 5-41
⑤	Page 5-41

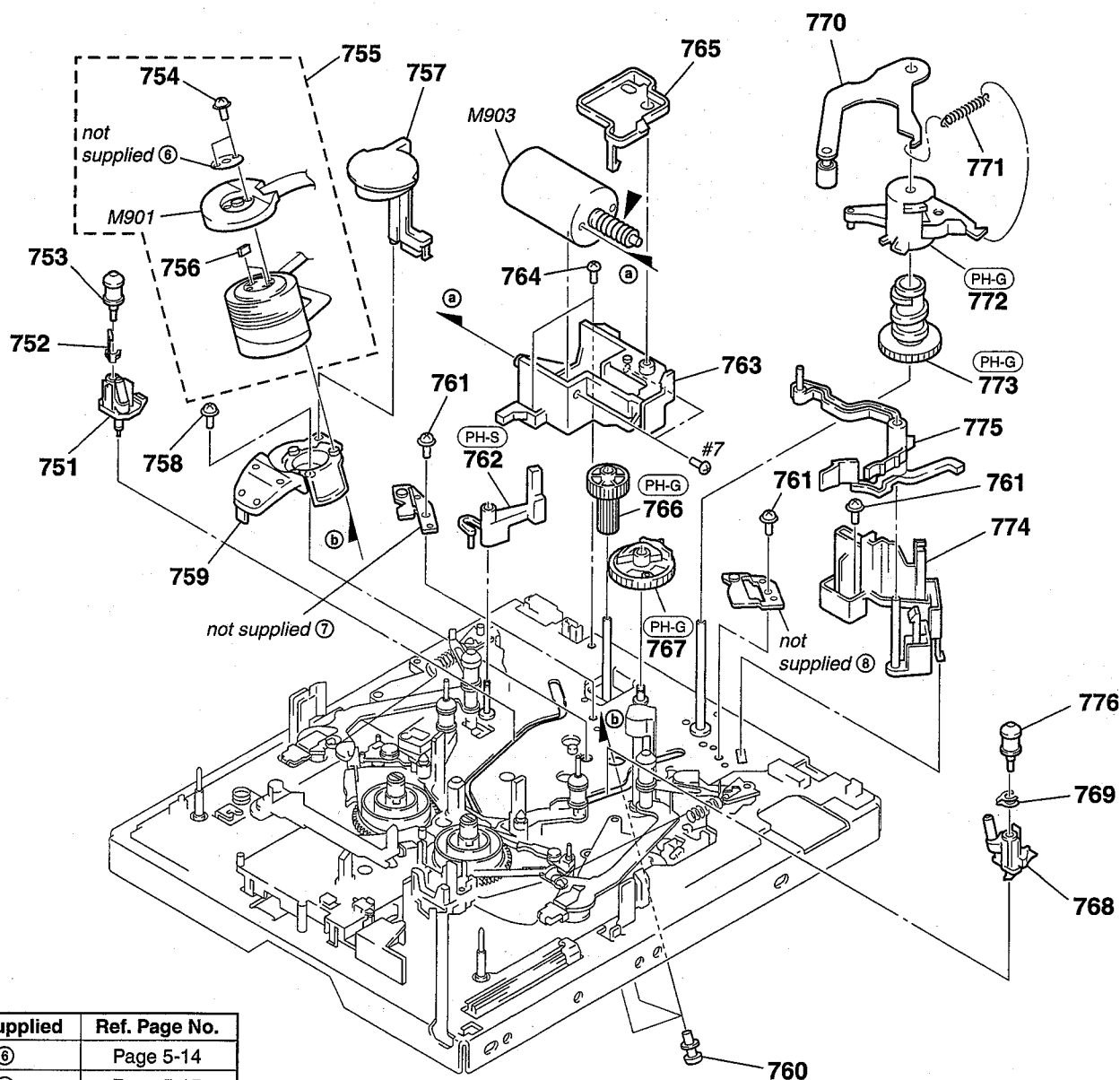
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
701	A-7092-644-A	FL BLOCK ASSY	(5-2)	708	3-967-816-01	BELT, ROLLER	(5-38)
702	A-7092-647-A	SLOAT BLOCK ASSY, C	(5-41)	709	3-947-503-01	SCREW (M1.4X2.5)	
703	3-967-604-01	SPRING (DB), TENSION	(A: 5-40/B: 5-41)	710	3-967-591-01	GEAR (B)	(5-40)
704	3-967-655-01	DOOR, C	(5-40)	711	3-967-590-01	GEAR (A)	(5-40)
705	3-967-613-01	SPRING (HS), TENSION COIL	(5-41)	712	3-967-653-01	OPENER, LID	(5-39)
706	3-967-777-01	ARM, DAMPER	(5-40)	713	3-967-592-01	WORM, C	(5-40)
707	X-3945-780-1	SHAFT ASSY, ROLLER	(5-38)	714	3-967-636-01	SPRING, SHIFT PLATE	(5-41)

# 6-1-5. MECHANISM CHASSIS ASSEMBLY (1) (TOP SIDE VIEW (1))

## NOTE FOR INSTALLATION

PH- : Phase adjustment

► : Place for grease (SG-055G: 7-651-000-09)



not supplied	Ref. Page No.
⑥	Page 5-14
⑦	Page 5-15
⑧	Page 5-16

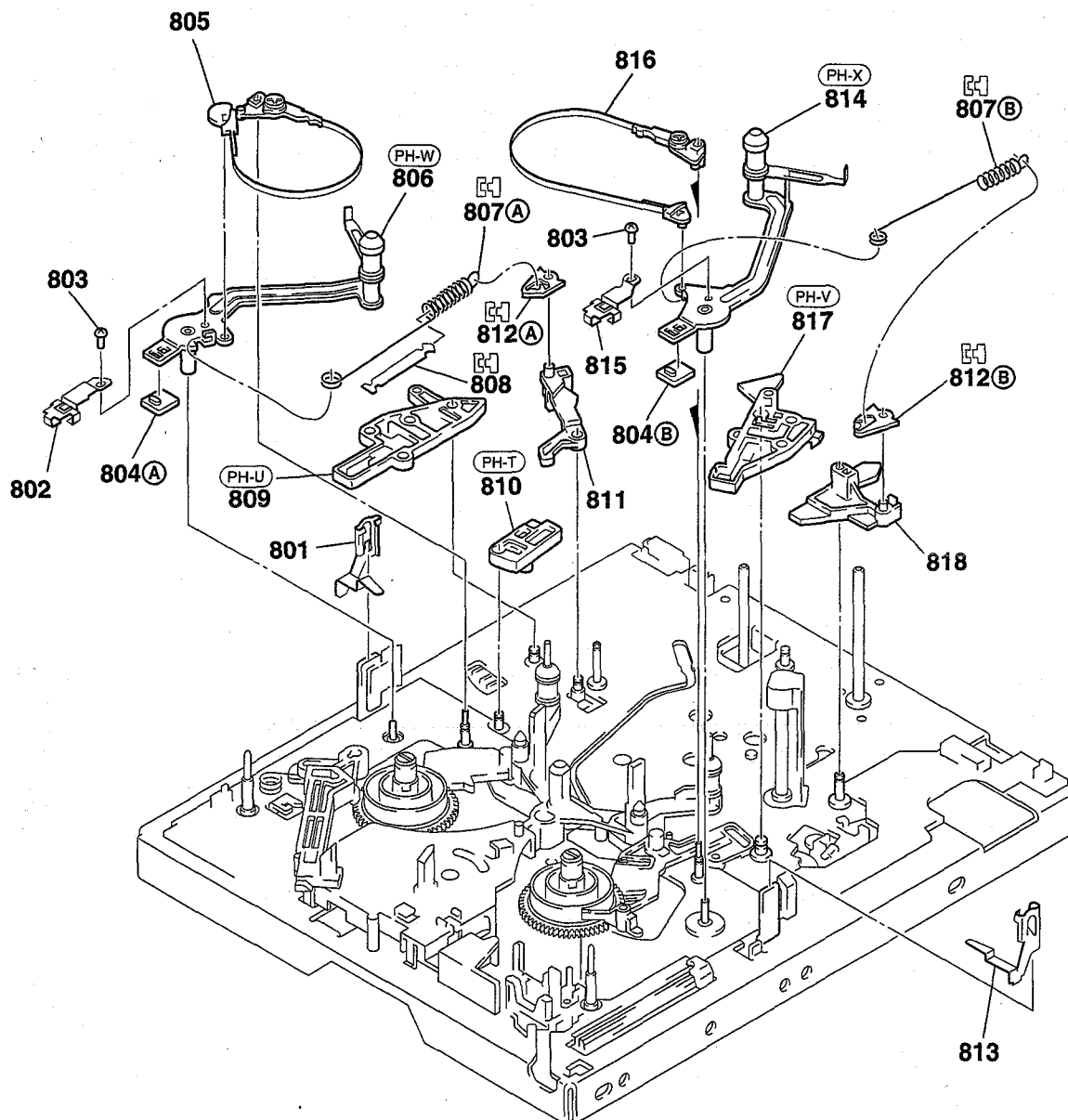
Ref. No.	Part No.	Description	Ref. page No.	Ref. No.	Part No.	Description	Ref. page No.
751	X-3945-801-1	BASE ASSY, TG3/4	(5-31)	765	3-967-751-01	COVER, LM	(5-15)
752	3-967-740-01	SPRING, TG3 LOCK	(5-26, 5-33)	766	3-967-767-01	WHEEL, LM WORM	(5-15)
753	X-3947-441-1	ROLLER ASSY, TG3	(5-26)	767	3-967-768-01	GEAR, PINCH DRIVING	(5-15)
754	3-703-816-74	SCREW (M1.4X4.5), SPECIAL HEAD		768	X-3945-803-1	BASE ASSY, TG5/6	(5-33)
755	A-7044-015-A	DRUM ASSY (DEH-08B-R)	(5-14)	769	3-967-741-01	SPRING, TG6 LOCK	(5-26, 5-33)
756	1-770-363-11	ELASTIC CONNECTOR	(5-14)	770	X-3945-810-1	ARM ASSY, PINCH	(5-16)
757	3-967-785-01	STOPPER, TAPE	(5-14)	771	3-967-645-01	SPRING (PINCH), TENSION COIL	(5-16)
758	3-967-728-01	SCREW (M2 X 5)		772	3-967-676-01	LIMITER, PINCH	(5-16)
759	3-967-817-01	BASE, DRUM	(5-14)	773	3-967-769-01	GEAR, PINCH CAM	(5-16)
760	A-7040-449-A	SCREW ASSY	(5-14)	774	3-967-679-01	RETAINER, PINCH	(5-16)
761	3-954-285-01	SCREW (M1.4X0.2)		775	3-967-795-03	ARM, HC	(5-16)
762	X-3945-798-1	ARM ASSY, TC	(5-15)	776	X-3945-802-1	ROLLER ASSY, TG6	(5-26)
763	3-967-675-01	HOLDER, LM	(5-15)	M901	X-3944-897-2	FPC ASSY, MOTOR	(5-14)
764	3-732-817-01	SCREW (2X4.5), TAPPING		M903	X-3945-784-1	MOTOR ASSY, LM (LOADING)	(5-15)

# 6-1-6. MECHANISM CHASSIS ASSEMBLY (2) (TOP SIDE VIEW (2))

## NOTE FOR INSTALLATION

PH- : Phase adjustment

⌏ : Take note of the position and specified direction.



Ref. No.	Part No.	Description	Ref. page No.	Ref. No.	Part No.	Description	Ref. page No.
801	3-967-809-01	RETAINER, TG2	(5-19)	810	3-967-764-01	ARM, TG2 SELECTION	(5-18)
802	3-967-715-01	SPRING, TG2 PLATE	(5-19)	811	3-967-807-01	HOOK, TG2 SPRING	(5-18)
803	3-728-148-11	SCREW (M1.4X2.5), SPECIAL HEAD		812	3-967-724-01	ADJUSTOR, SPRING	(5-18, A: 5-9/B: 5-10)
804	3-967-714-01	MAGNET, ET	(A: 5-19/B: 5-520)	813	3-967-810-01	RETAINER, TG7	(5-20)
805	X-3945-792-1	BAND ASSY, S TENSION REGULATOR	(5-19)	814	X-3945-806-1	ARM ASSY, TG7	(5-20)
806	X-3945-805-1	ARM ASSY, TG2	(5-19)	815	3-967-694-01	SPRING, TG7 PLATE	(5-20)
807	3-967-726-01	SPRING (TG2), TENSION COIL	(5-18, A: 5-9/B: 5-10)	816	X-3945-793-1	BAND ASSY, T TENSION REGULATOR	(5-20)
808	3-967-685-01	SHEET, DAMPER	(5-18)	817	X-3945-783-1	ARM ASSY, TG7 LOAD	(5-20)
809	X-3945-782-1	ARM ASSY, TG2 LOAD	(5-19)	818	3-967-808-01	HOOK, TG7 SPRING	(5-18)

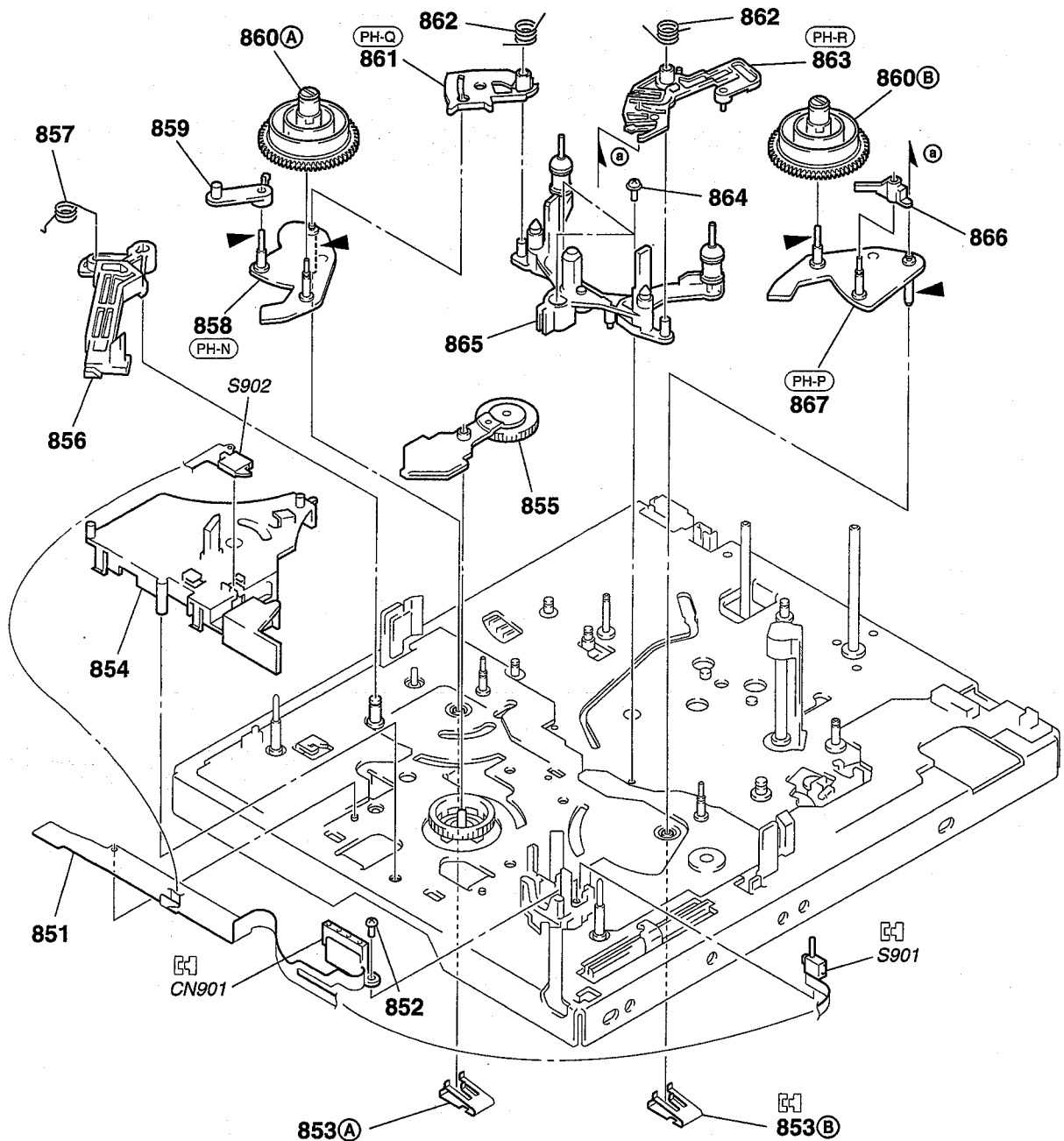
**6-1-7. MECHANISM CHASSIS ASSEMBLY (3)  
(TOP SIDE VIEW (3))**

**NOTE FOR INSTALLATION**

PH- : Phase adjustment

► : Place for grease (SG-055G: 7-651-000-09)

⌞ : Take note of the position and specified direction.



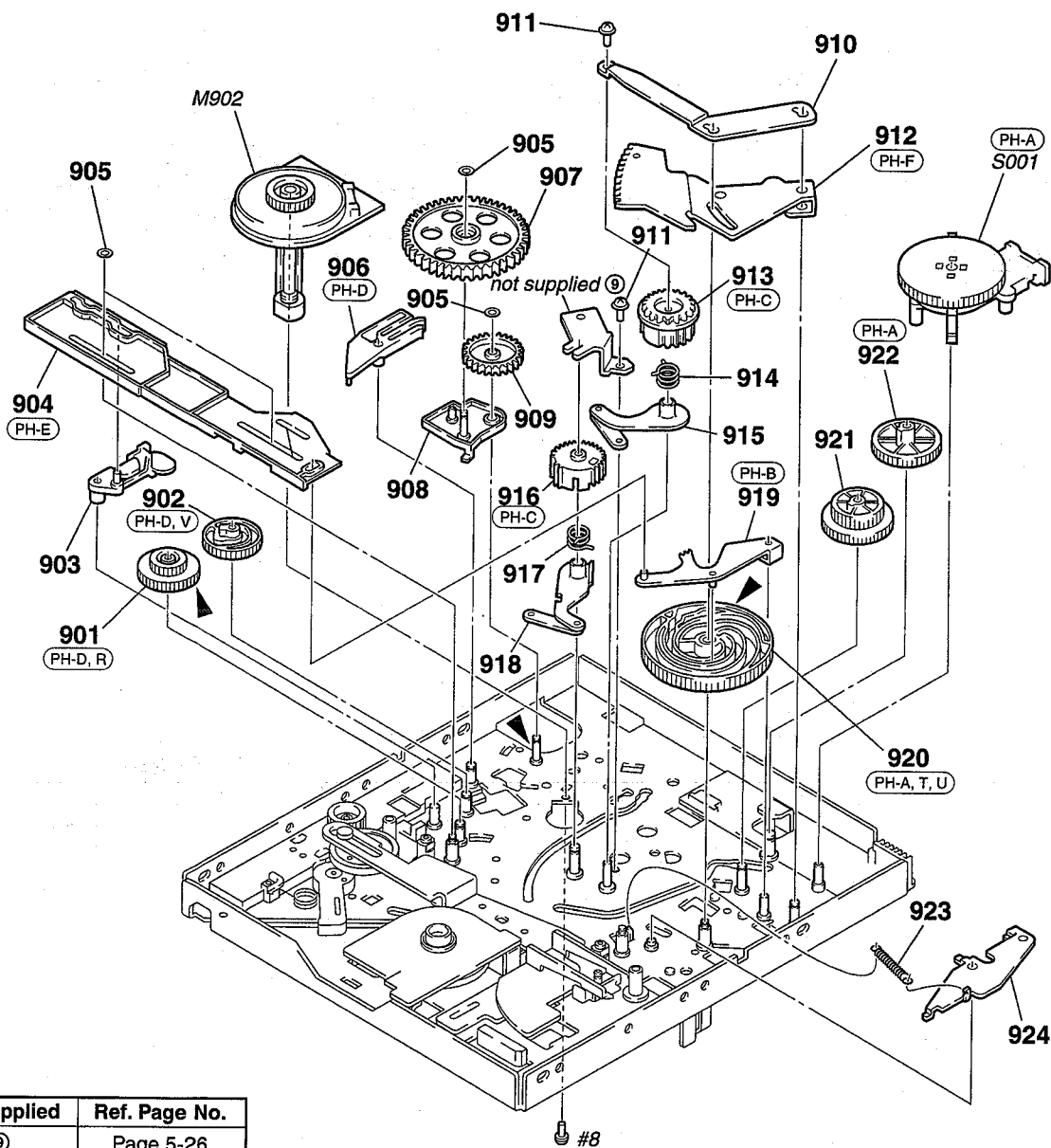
Ref. No.	Part No.	Description	Ref. page No.	Ref. No.	Part No.	Description	Ref. page No.
851	1-658-990-11	FP-406 FLEXIBLE BOARD		861	3-967-776-01	BRAKE, S	(5-25)
852	3-318-201-11	SCREW (B) (1.4X3), TAPPING		862	3-967-673-01	SPRING, S BRAKE	(5-25)
853	3-967-684-01	SPRING, PLATE (A: 5-23/B: 5-24)		863	3-967-775-01	RATCHET, T	(5-25)
854	3-967-692-01	GUARD, GOOSENECK (5-17)		864	3-947-503-01	SCREW (M1.4X2.5)	
855	X-3945-807-1	ARM ASSY, GOOSENECK (5-17)		865	X-3945-804-1	BASE ASSY, TG18	(5-25)
856	3-967-784-01	ARM, RL (5-17)		866	3-967-725-01	HOLDER, T REEL	(5-22)
857	3-967-683-01	SPRING, RL PRESS (5-17)		867	X-3945-815-1	PLATE ASSY, T REEL	(5-24)
858	X-3945-814-1	PLATE ASSY, S REEL (5-23)		CN901	1-770-312-21	CONNECTOR 4P	(5-35)
859	3-967-680-01	LINK, RL (5-17)		S901	1-762-551-11	SWITCH, PUSH (REC PROOF)	(5-35)
860	A-7040-441-A	TABLE BLOCK ASSY, REEL (A: 5-21/B: 5-22)		S902	1-572-288-11	SWITCH, PUSH (C IN SW)	(5-17)

# 6-1-8. MECHANISM CHASSIS ASSEMBLY (4) (BOTTOM SIDE VIEW (1))

## NOTE FOR INSTALLATION

PH- : Phase adjustment

▶ : Place for grease (SG-055G: 7-651-000-09)

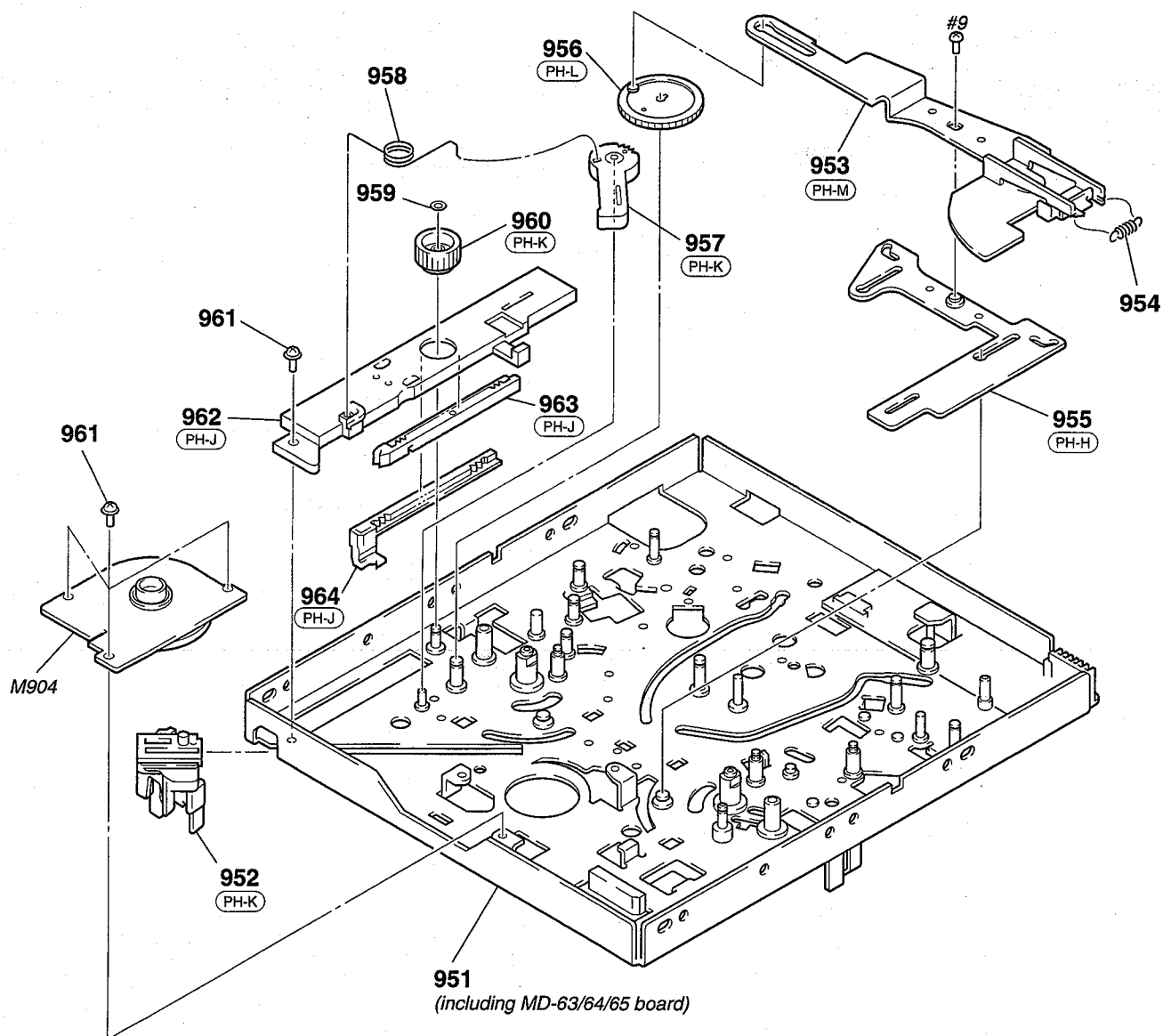


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⑨	Page 5-26

Ref. No.	Part No.	Description	Ref. page No.	Ref. No.	Part No.	Description	Ref. page No.
901	3-967-678-01	GEAR, T CAM	(5-28)	914	3-967-746-01	SPRING, TG3/4 LIMITER	(5-31)
902	3-967-756-01	GEAR, TG7 CAM	(5-28)	915	X-3945-794-1	ARM ASSY, TG3/4	(5-31)
903	3-967-763-01	ARM, TG7 SELECTION	(5-28)	916	3-967-792-01	GEAR, TG5/6	(5-33)
904	3-967-677-01	SLIDER, M	(5-28)	917	3-967-748-01	SPRING, TG5/6 LIMITER	(5-33)
905	3-669-465-01	WASHER (1.5), STOPPER		918	X-3945-795-1	ARM ASSY, TG5/6	(5-33)
906	3-967-829-01	ARM, FL SELECTION	(5-28)	919	3-967-753-01	ARM, M SLIDER	(5-28)
907	3-967-828-01	GEAR, FL JOINT	(5-26)	920	3-967-819-01	CAM, MAIN	(5-29)
908	X-3945-813-1	ARM ASSY, FL JOINT	(5-27)	921	3-967-765-01	GEAR, TC	(5-27)
909	3-967-830-01	GEAR, FL RELAY	(5-27)	922	3-967-766-01	GEAR, RELAY	(5-27)
910	3-967-755-01	RETAINER, GL ARM	(5-28)	923	3-967-633-01	SPRING (TG2SL), TENSION COIL	(5-29)
911	3-947-503-01	SCREW (M1.4X2.5)		924	X-3945-781-1	ARM ASSY, TG2 SL	(5-29)
912	3-967-754-01	ARM, GL	(5-28)	M902	8-835-545-01	MOTOR, DC SCD11A/J-N (CAPSTAN)	(5-26)
913	3-967-790-01	GEAR, TG3/4	(5-31)	S001	1-762-550-11	SWITCH, ROTARY (MODE)	(5-27)

**6-1-9. MECHANISM CHASSIS ASSEMBLY (5)**  
**(BOTTOM SIDE VIEW (2))**

**NOTE FOR INSTALLATION**  
 (PH- ): Phase adjustment



Ref. No.	Part No.	Description	Ref. page No.	Ref. No.	Part No.	Description	Ref. page No.
* 951	A-7040-431-A	CHASSIS BLOCK ASSY, MECHANICAL (including MD-63/64/65 board)		958	3-967-682-01	SPRING, MIC PRESS	(5-34)
952	3-967-690-01	HOLDER, MIC	(5-35)	959	3-669-465-01	WASHER (1.5), STOPPER	
953	X-3945-789-1	ARM ASSY, RS	(5-34)	960	3-967-681-01	GEAR, RACK JOINT	(5-35)
954	3-967-667-01	TENSION COIL SPRING	(5-34)	961	3-947-503-01	SCREW (M1.4X2.5)	
955	X-3945-788-1	LINK ASSY, PLATE	(5-37)	962	3-967-689-01	HOLDER, RACK	(5-35)
956	X-3945-787-1	GEAR ASSY, RS	(5-34)	963	3-967-771-01	RACK (SC)	(5-35)
957	3-967-783-01	LEVER, MIC	(5-34)	964	3-967-770-01	RACK (LC)	(5-35)
				M904	8-835-537-01	MOTOR, DC SRD11A/J-N (REEL)	(5-34)

## 6-2. ELECTRICAL PARTS LIST

## NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS  
All resistors are in ohms.  
METAL: Metal-film resistor.  
METAL OXIDE: Metal oxide-film resistor.  
F: nonflammable

- SEMICONDUCTORS  
In each case, u:  $\mu$ , for example:  
uA. . :  $\mu$ A. . uPA. . :  $\mu$ PA. .  
uPB. . :  $\mu$ PB. . uPC. . :  $\mu$ PC. .  
uPD. . :  $\mu$ PD. .
- CAPACITORS  
uF:  $\mu$ F
- COILS  
uH:  $\mu$ H

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-7067-131-A	CM-56 BOARD, COMPLETE (DSR-20MD)		C054	1-127-530-11	ELECT	22uF 20% 20V
*	A-7067-127-A	CM-56 BOARD, COMPLETE (DSR-20MDP)		C055	1-163-017-00	CERAMIC CHIP	0.0047uF 5% 50V
		*****		C056	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
		(Ref.No. 4,000 Series)		C058	1-127-530-11	ELECT	22uF 20% 20V
		< CAPACITOR >		C063	1-164-336-11	CERAMIC CHIP	0.33uF 25V
C001	1-163-121-00	CERAMIC CHIP	150PF 5% 50V	C066	1-163-235-11	CERAMIC CHIP	22PF 5% 50V
C004	1-163-121-00	CERAMIC CHIP	150PF 5% 50V	C067	1-163-235-11	CERAMIC CHIP	22PF 5% 50V
C005	1-163-021-91	CERAMIC CHIP	0.01uF 10% 50V	C068	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C006	1-124-779-00	ELECT CHIP	10uF 20% 16V	C073	1-163-019-00	CERAMIC CHIP	0.0068uF 10% 50V
C007	1-165-319-11	CERAMIC CHIP	0.1uF 50V	C075	1-163-235-11	CERAMIC CHIP	22PF 5% 50V
C009	1-126-206-11	ELECT CHIP	100uF 20% 6.3V	C076	1-163-235-11	CERAMIC CHIP	22PF 5% 50V
C011	1-163-037-11	CERAMIC CHIP	0.022uF 10% 25V	C078	1-124-779-00	ELECT CHIP	10uF 20% 16V
C017	1-164-161-11	CERAMIC CHIP	0.0022uF 10% 100V	C079	1-163-009-11	CERAMIC CHIP	0.001uF 10% 50V
C018	1-163-021-91	CERAMIC CHIP	0.01uF 10% 50V	C080	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C019	1-163-021-91	CERAMIC CHIP	0.01uF 10% 50V	C081	1-165-319-11	CERAMIC CHIP	0.1uF 50V
C020	1-124-779-00	ELECT CHIP	10uF 20% 16V	C082	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C021	1-165-319-11	CERAMIC CHIP	0.1uF 50V	C083	1-127-530-11	ELECT	22uF 20% 20V
C022	1-124-779-00	ELECT CHIP	10uF 20% 16V	C086	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C024	1-163-227-11	CERAMIC CHIP	10PF 0.5PF 50V	C087	1-127-530-11	ELECT	22uF 20% 20V
C025	1-124-779-00	ELECT CHIP	10uF 20% 16V	C088	1-126-193-11	ELECT	1uF 20% 50V
C026	1-165-319-11	CERAMIC CHIP	0.1uF 50V	C090	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V
C027	1-163-021-91	CERAMIC CHIP	0.01uF 10% 50V	C091	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C028	1-163-227-11	CERAMIC CHIP	10PF 0.5PF 50V	C092	1-126-205-11	ELECT CHIP	47uF 20% 6.3V
C029	1-165-319-11	CERAMIC CHIP	0.1uF 50V	C093	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C030	1-163-031-11	CERAMIC CHIP	0.01uF 50V	C094	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C031	1-165-319-11	CERAMIC CHIP	0.1uF 50V	C095	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C032	1-126-193-11	ELECT	1uF 20% 50V	C096	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C034	1-163-021-91	CERAMIC CHIP	0.01uF 10% 50V	C099	1-163-019-00	CERAMIC CHIP	0.0068uF 10% 50V
C035	1-163-021-91	CERAMIC CHIP	0.01uF 10% 50V	C101	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C036	1-165-319-11	CERAMIC CHIP	0.1uF 50V	C102	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C038	1-163-031-11	CERAMIC CHIP	0.01uF 50V	C103	1-126-204-11	ELECT CHIP	47uF 20% 16V
C039	1-124-778-00	ELECT CHIP	22uF 20% 6.3V	C104	1-163-009-11	CERAMIC CHIP	0.001uF 10% 50V
C040	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V	C105	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C041	1-163-035-00	CERAMIC CHIP	0.047uF 50V	C106	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C042	1-163-257-11	CERAMIC CHIP	180PF 5% 50V	C107	1-165-319-11	CERAMIC CHIP	0.1uF 50V
C046	1-165-319-11	CERAMIC CHIP	0.1uF 50V	C108	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C047	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V	C111	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C048	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V	C112	1-165-319-11	CERAMIC CHIP	0.1uF 50V
C049	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V	C113	1-163-020-00	CERAMIC CHIP	0.0082uF 10% 50V
C051	1-165-319-11	CERAMIC CHIP	0.1uF 50V	C115	1-163-020-00	CERAMIC CHIP	0.0082uF 10% 50V
C052	1-126-193-11	ELECT	1uF 20% 50V	C117	1-163-020-00	CERAMIC CHIP	0.0082uF 10% 50V
C053	1-126-397-11	ELECT	33uF 20% 25V	C118	1-163-237-11	CERAMIC CHIP	27PF 5% 50V
				C119	1-163-009-11	CERAMIC CHIP	0.001uF 10% 50V

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C120	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V	IC014	8-759-510-73	IC BA10393F-E2	
C121	1-165-319-11	CERAMIC CHIP 0.1uF	50V	IC016	8-759-510-71	IC BA10358F-E2	
C122	1-163-019-00	CERAMIC CHIP 0.0068uF 10%	50V	IC017	8-759-011-65	IC TC74HC4053AF (EL)	
C123	1-124-779-00	ELECT CHIP 10uF 20%	16V	IC018	8-759-085-67	IC uPC339G2-E2	
C126	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V	IC019	8-759-510-71	IC BA10358F-E2	
C128	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V	IC021	8-759-335-42	IC CXA1793N-E2	
C129	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V	IC022	8-759-339-61	IC LB1897D	
C133	1-163-031-11	CERAMIC CHIP 0.01uF	50V	IC501	8-759-098-24	IC PQ30RV11	
C504	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V	IC503	8-759-339-61	IC LB1897D	
C505	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V	< COIL >			
C506	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V	L003	1-412-282-41	INDUCTOR 470uH	
C508	1-126-205-11	ELECT CHIP 47uF 20%	6.3V	L004	1-414-398-11	INDUCTOR 10uH	
C509	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V	L005	1-414-398-11	INDUCTOR 10uH	
C510	1-163-031-11	CERAMIC CHIP 0.01uF	50V	L006	1-414-398-11	INDUCTOR 10uH	
C511	1-126-205-11	ELECT CHIP 47uF 20%	6.3V	L007	1-414-402-11	INDUCTOR 47uH	
C512	1-126-193-11	ELECT 1uF 20%	50V	L008	1-424-522-21	INDUCTOR 10uH	
C513	1-164-161-11	CERAMIC CHIP 0.0022uF 10%	100V	L010	1-424-522-21	INDUCTOR 10uH	
C514	1-163-031-11	CERAMIC CHIP 0.01uF	50V	L011	1-409-535-41	INDUCTOR 100uH	
C515	1-126-206-11	ELECT CHIP 100uF 20%	6.3V	L013	1-424-524-21	INDUCTOR 47uH	
< CONNECTOR >				L014	1-414-402-11	INDUCTOR 47uH	
CN001	1-770-699-11	CONNECTOR, FFC/FPC 16P		L501	1-414-402-11	INDUCTOR 47uH	
* CN002	1-691-551-11	PIN, CONNECTOR (SMD) 8P		L502	1-414-402-11	INDUCTOR 47uH	
CN003	1-750-345-11	CONNECTOR, FFC/EPC (ZIF) 30P		< IC LINK >			
* CN004	1-564-033-11	PIN, CONNECTOR 8P		△PS001	1-532-840-21	LINK, IC (1.25A) (DSR-20MDP)	
CN005	1-770-692-11	CONNECTOR, FFC/FPC 9P		< TRANSISTOR >			
* CN006	1-691-074-11	HOUSING, CONNECTOR 15P		Q001	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
* CN007	1-691-074-11	HOUSING, CONNECTOR 15P		Q002	8-729-421-19	TRANSISTOR UN2213-TX	
CN008	1-770-697-11	CONNECTOR, FFC/FPC 14P		Q003	8-729-010-25	TRANSISTOR MSD601-RT1	
< DIODE >				Q004	8-729-421-22	TRANSISTOR UN2211-TX	
D001	8-719-026-23	DIODE MA786-TX		Q008	8-729-010-25	TRANSISTOR MSD601-RT1	
D002	8-719-106-53	DIODE RD10M-T1B		Q009	8-729-010-25	TRANSISTOR MSD601-RT1	
D004	8-719-938-78	DIODE SB10-05PCP-TD		Q012	8-729-208-96	TRANSISTOR 2SA1242-Y (TE16L)	
D011	8-719-026-23	DIODE MA786-TX		Q014	8-729-421-19	TRANSISTOR UN2213-TX	
D012	8-719-026-23	DIODE MA786-TX		Q500	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
D501	8-719-938-78	DIODE SB10-05PCP-TD		Q501	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
D502	8-719-108-24	DIODE MA151A-TX		Q502	8-729-208-96	TRANSISTOR 2SA1242-Y (TE16L)	
< FUSE >				Q503	8-729-421-19	TRANSISTOR UN2213-TX	
△F001	1-532-777-21	FUSE, MICRO (SECONDARY) (1.25A) (DSR-20MD)		Q504	8-729-421-19	TRANSISTOR UN2213-TX	
< FILTER >				< RESISTOR >			
FL001	1-233-351-21	FILTER, BAND PASS		R001	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
FL002	1-233-350-21	FILTER, BAND PASS		R002	1-216-065-91	RES, CHIP 4.7K 5%	1/10W
< IC >				R003	1-216-015-00	METAL CHIP 39 5%	1/10W
IC001	8-759-062-66	IC TC7S66F (TE85R)		R005	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
IC002	8-759-235-19	IC TC74HC08AF (EL)		R006	1-216-089-91	RES, CHIP 47K 5%	1/10W
IC003	8-752-888-43	IC CXP912032-073R-T6		R009	1-216-049-91	RES, CHIP 1K 5%	1/10W
IC005	8-759-327-00	IC CXA8044Q-T4		R010	1-216-089-91	RES, CHIP 47K 5%	1/10W
IC006	8-759-085-67	IC uPC339G2-E2		R011	1-216-089-91	RES, CHIP 47K 5%	1/10W
IC008	8-759-186-44	IC TC74VHC125F (EL)		R012	1-216-089-91	RES, CHIP 47K 5%	1/10W
IC009	8-759-182-89	IC BA6219BFP-Y-E2		R015	1-216-295-91	SHORT 0	
IC011	8-759-148-05	IC CXA8010M-E1		R016	1-216-089-91	RES, CHIP 47K 5%	1/10W
IC012	8-759-945-17	IC MB3775PF-G-BND-ER		R017	1-216-295-91	SHORT 0	
				R018	1-216-089-91	RES, CHIP 47K 5%	1/10W
				R019	1-216-295-91	SHORT 0	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



**CM-56**

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
R020	1-216-093-91	RES, CHIP	68K	5%	1/10W	R109	1-216-081-00	METAL CHIP	22K	5%	1/10W
R021	1-216-089-91	RES, CHIP	47K	5%	1/10W	R110	1-216-073-00	METAL CHIP	10K	5%	1/10W
R026	1-216-049-91	RES, CHIP	1K	5%	1/10W	R111	1-216-049-91	RES, CHIP	1K	5%	1/10W
R027	1-216-089-91	RES, CHIP	47K	5%	1/10W	R112	1-216-081-00	METAL CHIP	22K	5%	1/10W
R028	1-216-049-91	RES, CHIP	1K	5%	1/10W	R113	1-216-049-91	RES, CHIP	1K	5%	1/10W
R029	1-216-049-91	RES, CHIP	1K	5%	1/10W	R114	1-216-065-91	RES, CHIP	4.7K	5%	1/10W
R030	1-216-049-91	RES, CHIP	1K	5%	1/10W	R115	1-216-043-91	RES, CHIP	560	5%	1/10W
R032	1-216-049-91	RES, CHIP	1K	5%	1/10W	R116	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R033	1-216-049-91	RES, CHIP	1K	5%	1/10W	R117	1-216-043-91	RES, CHIP	560	5%	1/10W
R035	1-216-025-91	RES, CHIP	100	5%	1/10W	R118	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R036	1-216-025-91	RES, CHIP	100	5%	1/10W	R119	1-216-073-00	METAL CHIP	10K	5%	1/10W
R039	1-216-075-00	METAL CHIP	12K	5%	1/10W	R120	1-216-073-00	METAL CHIP	10K	5%	1/10W
R040	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	R121	1-219-107-91	RES, CHIP	1.5	5%	1/8W
R046	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	R122	1-219-107-91	RES, CHIP	1.5	5%	1/8W
R050	1-216-077-91	RES, CHIP	15K	5%	1/10W	R125	1-219-107-91	RES, CHIP	1.5	5%	1/8W
R051	1-216-073-00	METAL CHIP	10K	5%	1/10W	R126	1-216-049-91	RES, CHIP	1K	5%	1/10W
R052	1-216-089-91	RES, CHIP	47K	5%	1/10W	R127	1-216-049-91	RES, CHIP	1K	5%	1/10W
R053	1-216-049-91	RES, CHIP	1K	5%	1/10W	R128	1-216-049-91	RES, CHIP	1K	5%	1/10W
R054	1-216-295-91	SHORT	0			R129	1-216-049-91	RES, CHIP	1K	5%	1/10W
R055	1-216-049-91	RES, CHIP	1K	5%	1/10W	R130	1-216-025-91	RES, CHIP	100	5%	1/10W
R059	1-216-043-91	RES, CHIP	560	5%	1/10W	R131	1-216-025-91	RES, CHIP	100	5%	1/10W
R060	1-216-049-91	RES, CHIP	1K	5%	1/10W	R132	1-216-025-91	RES, CHIP	100	5%	1/10W
R061	1-216-049-91	RES, CHIP	1K	5%	1/10W	R133	1-216-075-00	METAL CHIP	12K	5%	1/10W
R063	1-216-049-91	RES, CHIP	1K	5%	1/10W	R134	1-216-072-00	METAL CHIP	9.1K	5%	1/10W
R064	1-216-049-91	RES, CHIP	1K	5%	1/10W	R136	1-216-049-91	RES, CHIP	1K	5%	1/10W
R066	1-216-025-91	RES, CHIP	100	5%	1/10W	R137	1-216-049-91	RES, CHIP	1K	5%	1/10W
R067	1-216-073-00	METAL CHIP	10K	5%	1/10W	R138	1-216-049-91	RES, CHIP	1K	5%	1/10W
R069	1-216-085-00	METAL CHIP	33K	5%	1/10W	R143	1-216-073-00	METAL CHIP	10K	5%	1/10W
R070	1-216-073-00	METAL CHIP	10K	5%	1/10W	R146	1-216-295-91	SHORT	0		
R071	1-216-025-91	RES, CHIP	100	5%	1/10W	R148	1-216-017-91	RES, CHIP	47	5%	1/10W
R075	1-216-049-91	RES, CHIP	1K	5%	1/10W	R153	1-216-295-91	SHORT	0		
R076	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R154	1-216-295-91	SHORT	0		
R077	1-216-025-91	RES, CHIP	100	5%	1/10W	R155	1-216-295-91	SHORT	0		
R078	1-216-049-91	RES, CHIP	1K	5%	1/10W	R158	1-216-121-91	RES, CHIP	1M	5%	1/10W
R079	1-216-073-00	METAL CHIP	10K	5%	1/10W	R161	1-216-295-91	SHORT	0		
R080	1-216-025-91	RES, CHIP	100	5%	1/10W	R164	1-216-672-11	METAL CHIP	7.5K	0.5%	1/10W
R081	1-216-049-91	RES, CHIP	1K	5%	1/10W	R165	1-216-017-91	RES, CHIP	47	5%	1/10W
R082	1-216-073-00	METAL CHIP	10K	5%	1/10W	R167	1-216-017-91	RES, CHIP	47	5%	1/10W
R083	1-216-089-91	RES, CHIP	47K	5%	1/10W	R168	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R084	1-216-025-91	RES, CHIP	100	5%	1/10W	R169	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R085	1-216-049-91	RES, CHIP	1K	5%	1/10W	R171	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R086	1-216-049-91	RES, CHIP	1K	5%	1/10W	R176	1-216-033-00	METAL CHIP	220	5%	1/10W
R087	1-216-049-91	RES, CHIP	1K	5%	1/10W	R182	1-216-121-91	RES, CHIP	1M	5%	1/10W
R088	1-216-049-91	RES, CHIP	1K	5%	1/10W	R193	1-216-079-00	METAL CHIP	18K	5%	1/10W
R089	1-216-049-91	RES, CHIP	1K	5%	1/10W	R194	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R090	1-216-081-00	METAL CHIP	22K	5%	1/10W	R195	1-216-079-00	METAL CHIP	18K	5%	1/10W
R091	1-216-081-00	METAL CHIP	22K	5%	1/10W	R196	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R092	1-216-089-91	RES, CHIP	47K	5%	1/10W	R201	1-216-073-00	METAL CHIP	10K	5%	1/10W
R093	1-216-049-91	RES, CHIP	1K	5%	1/10W	R203	1-216-121-91	RES, CHIP	1M	5%	1/10W
R094	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W	R206	1-216-073-00	METAL CHIP	10K	5%	1/10W
R095	1-216-645-11	METAL CHIP	560	0.5%	1/10W	R207	1-216-073-00	METAL CHIP	10K	5%	1/10W
R096	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	R208	1-216-045-00	METAL CHIP	680	5%	1/10W
R097	1-216-073-00	METAL CHIP	10K	5%	1/10W	R209	1-216-045-00	METAL CHIP	680	5%	1/10W
R098	1-216-121-91	RES, CHIP	1M	5%	1/10W	R211	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W
R099	1-216-105-91	RES, CHIP	220K	5%	1/10W	R212	1-216-645-11	METAL CHIP	560	0.5%	1/10W
R102	1-216-089-91	RES, CHIP	47K	5%	1/10W	R213	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R103	1-216-089-91	RES, CHIP	47K	5%	1/10W	R214	1-216-073-00	METAL CHIP	10K	5%	1/10W
R104	1-216-295-91	SHORT	0			R215	1-216-105-91	RES, CHIP	220K	5%	1/10W
R107	1-216-089-91	RES, CHIP	47K	5%	1/10W	R216	1-216-081-00	METAL CHIP	22K	5%	1/10W
R108	1-216-295-91	SHORT	0			R217	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R218	1-216-081-00	METAL CHIP	22K	5%	1/10W
R220	1-216-043-91	RES, CHIP	560	5%	1/10W
R221	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R225	1-216-295-91	SHORT	0		
R227	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R228	1-216-043-91	RES, CHIP	560	5%	1/10W
R229	1-216-048-00	METAL CHIP	910	5%	1/10W
R230	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R231	1-216-048-00	METAL CHIP	910	5%	1/10W
R232	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R233	1-216-089-91	RES, CHIP	47K	5%	1/10W
R234	1-216-075-00	METAL CHIP	12K	5%	1/10W
R235	1-216-072-00	METAL CHIP	9.1K	5%	1/10W
R241	1-216-073-00	METAL CHIP	10K	5%	1/10W
R244	1-216-077-91	RES, CHIP	15K	5%	1/10W
R245	1-217-671-11	METAL CHIP	1	5%	1/10W
R247	1-216-073-00	METAL CHIP	10K	5%	1/10W
R248	1-217-671-11	METAL CHIP	1	5%	1/10W
R249	1-217-671-11	METAL CHIP	1	5%	1/10W
R250	1-217-671-11	METAL CHIP	1	5%	1/10W
R253	1-216-073-00	METAL CHIP	10K	5%	1/10W
R256	1-216-075-00	METAL CHIP	12K	5%	1/10W
R257	1-216-079-00	METAL CHIP	18K	5%	1/10W
R259	1-216-295-91	SHORT	0		
R262	1-216-093-91	RES, CHIP	68K	5%	1/10W
R268	1-216-097-91	RES, CHIP	100K	5%	1/10W
R270	1-216-073-00	METAL CHIP	10K	5%	1/10W
R271	1-216-073-00	METAL CHIP	10K	5%	1/10W
R274	1-216-073-00	METAL CHIP	10K	5%	1/10W
R275	1-216-099-00	METAL CHIP	120K	5%	1/10W
R283	1-216-089-91	RES, CHIP	47K	5%	1/10W
R284	1-216-025-91	RES, CHIP	100	5%	1/10W
R285	1-216-025-91	RES, CHIP	100	5%	1/10W
R286	1-216-049-91	RES, CHIP	1K	5%	1/10W
R290	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R506	1-216-049-91	RES, CHIP	1K	5%	1/10W
R516	1-216-295-91	SHORT	0		
R517	1-216-665-11	METAL CHIP	3.9K	0.5%	1/10W
R518	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W
R519	1-216-089-91	RES, CHIP	47K	5%	1/10W
R520	1-216-089-91	RES, CHIP	47K	5%	1/10W
R521	1-216-089-91	RES, CHIP	47K	5%	1/10W
R524	1-216-089-91	RES, CHIP	47K	5%	1/10W
R525	1-216-025-91	RES, CHIP	100	5%	1/10W
R526	1-216-025-91	RES, CHIP	100	5%	1/10W
R528	1-216-295-91	SHORT	0		
R529	1-219-107-91	RES, CHIP	1.5	5%	1/8W
R530	1-219-107-91	RES, CHIP	1.5	5%	1/8W
R531	1-219-107-91	RES, CHIP	1.5	5%	1/8W
R535	1-216-089-91	RES, CHIP	47K	5%	1/10W
R536	1-216-295-91	SHORT	0		
R537	1-216-295-91	SHORT	0		
R538	1-216-295-91	SHORT	0		
R541	1-216-073-00	METAL CHIP	10K	5%	1/10W
R542	1-216-073-00	METAL CHIP	10K	5%	1/10W
R543	1-216-025-91	RES, CHIP	100	5%	1/10W
R545	1-216-065-91	RES, CHIP	4.7K	5%	1/10W
R546	1-216-073-00	METAL CHIP	10K	5%	1/10W
R547	1-216-025-91	RES, CHIP	100	5%	1/10W
R549	1-216-065-91	RES, CHIP	4.7K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R550	1-216-073-00	METAL CHIP	10K	5%	1/10W
R551	1-216-089-91	RES, CHIP	47K	5%	1/10W
R552	1-216-089-91	RES, CHIP	47K	5%	1/10W
R553	1-216-073-00	METAL CHIP	10K	5%	1/10W
R554	1-216-073-00	METAL CHIP	10K	5%	1/10W
R555	1-216-073-00	METAL CHIP	10K	5%	1/10W
R556	1-216-025-91	RES, CHIP	100	5%	1/10W
R560	1-216-065-91	RES, CHIP	4.7K	5%	1/10W
R561	1-216-049-91	RES, CHIP	1K	5%	1/10W
R562	1-216-049-91	RES, CHIP	1K	5%	1/10W
R563	1-216-049-91	RES, CHIP	1K	5%	1/10W
R564	1-216-049-91	RES, CHIP	1K	5%	1/10W
R565	1-216-049-91	RES, CHIP	1K	5%	1/10W
R566	1-216-049-91	RES, CHIP	1K	5%	1/10W
R567	1-216-017-91	RES, CHIP	47	5%	1/10W
R568	1-216-017-91	RES, CHIP	47	5%	1/10W
R569	1-216-017-91	RES, CHIP	47	5%	1/10W
R570	1-216-017-91	RES, CHIP	47	5%	1/10W
R572	1-216-295-91	SHORT	0		
R573	1-216-049-91	RES, CHIP	1K	5%	1/10W
R574	1-216-049-91	RES, CHIP	1K	5%	1/10W
R575	1-216-049-91	RES, CHIP	1K	5%	1/10W
R901	1-216-295-91	SHORT	0 (DSR-20MD)		
R902	1-216-295-91	SHORT	0 (DSR-20MDP)		

&lt; VIBRATOR &gt;

X001 1-760-655-21 VIBRATOR, CRYSTAL (20MHz)

FP-406 BOARD (Ref No. 5,000 Series)

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1-658-990-11 FP-406 FLEXIBLE BOARD  
 3-318-201-11 SCREW (B) (1.4X3), TAPPING  
 3-967-690-01 HOLDER, MIC  
 3-970-665-01 CLEANER, MIC

&lt; CONNECTOR &gt;

CN901 1-770-312-21 CONNECTOR 4P

&lt; SWITCH &gt;

S901 1-762-551-11 SWITCH, PUSH (REC PROOF)  
 S902 1-572-288-11 SWITCH, PUSH (C IN)

\* A-7074-111-A FR-136 BOARD, COMPLETE  
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(Ref.No. 5,000 Series)

\* 3-987-166-01 HOLDER, INDICATION TUBE

&lt; BUZZER &gt;

BZ101 1-529-104-11 BUZZER, PIEZOELECTRIC

&lt; CAPACITOR &gt;

C109 1-113-682-11 TANTALUM CHIP 33uF 20% 10V  
 C110 1-164-156-11 CERAMIC CHIP 0.1uF 25V  
 C111 1-164-156-11 CERAMIC CHIP 0.1uF 25V  
 C112 1-113-682-11 TANTALUM CHIP 33uF 20% 10V  
 C113 1-113-682-11 TANTALUM CHIP 33uF 20% 10V  
 C114 1-164-156-11 CERAMIC CHIP 0.1uF 25V

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C115	1-164-357-11	CERAMIC CHIP 1000PF 5%	50V	R103	1-216-842-11	METAL CHIP 56K 5%	1/16W
C116	1-126-934-11	ELECT 220uF 20%	10V	R105	1-216-811-11	METAL CHIP 150 5%	1/16W
C117	1-164-357-11	CERAMIC CHIP 1000PF 5%	50V	R106	1-216-841-11	METAL CHIP 47K 5%	1/16W
C118	1-164-357-11	CERAMIC CHIP 1000PF 5%	50V	R107	1-216-841-11	METAL CHIP 47K 5%	1/16W
< CONNECTOR >				R108	1-216-841-11	METAL CHIP 47K 5%	1/16W
CN104	1-774-770-11	CONNECTOR, FFC/FPC 30P		R109	1-216-841-11	METAL CHIP 47K 5%	1/16W
< DIODE >				R110	1-216-841-11	METAL CHIP 47K 5%	1/16W
D101	8-719-104-34	DIODE MA151WA-TX		R111	1-216-841-11	METAL CHIP 47K 5%	1/16W
D108	8-719-061-58	DIODE CL-200Y-C-TU (DUP)		R112	1-216-841-11	METAL CHIP 47K 5%	1/16W
D109	8-719-061-58	DIODE CL-200Y-C-TU (REC)		R113	1-216-841-11	METAL CHIP 47K 5%	1/16W
D110	8-719-061-58	DIODE CL-200Y-C-TU (PAUSE)		R114	1-216-837-11	METAL CHIP 22K 5%	1/16W
D111	8-719-061-58	DIODE CL-200Y-C-TU (FF)		R115	1-216-837-11	METAL CHIP 22K 5%	1/16W
D112	8-719-066-82	DIODE CL-200YG-C-TU (PLAY)		R116	1-216-817-11	METAL CHIP 470 5%	1/16W
D113	8-719-027-84	DIODE CL-155UR/G-DT (ON/STANDBY)		R119	1-216-797-11	METAL CHIP 10 5%	1/16W
D114	8-719-106-08	DIODE RD6.2M-T1B2		R120	1-216-797-11	METAL CHIP 10 5%	1/16W
D115	8-719-106-08	DIODE RD6.2M-T1B2		R121	1-216-797-11	METAL CHIP 10 5%	1/16W
D116	8-719-106-08	DIODE RD6.2M-T1B2		R122	1-216-797-11	METAL CHIP 10 5%	1/16W
D117	8-719-061-58	DIODE CL-200Y-C-TU (REW)		R123	1-216-841-11	METAL CHIP 47K 5%	1/16W
< FERRITE BEAD >				R124	1-216-837-11	METAL CHIP 22K 5%	1/16W
FB101	1-414-445-11	FERRITE 0uH		R125	1-216-833-91	RES, CHIP 10K 5%	1/16W
FB102	1-414-445-11	FERRITE 0uH		R126	1-216-833-91	RES, CHIP 10K 5%	1/16W
FB103	1-414-445-11	FERRITE 0uH		R129	1-216-837-11	METAL CHIP 22K 5%	1/16W
FB104	1-414-445-11	FERRITE 0uH		R130	1-216-833-91	RES, CHIP 10K 5%	1/16W
FB105	1-414-445-11	FERRITE 0uH		R131	1-216-833-91	RES, CHIP 10K 5%	1/16W
FB106	1-414-445-11	FERRITE 0uH		R138	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
FB107	1-414-445-11	FERRITE 0uH		R139	1-216-837-11	METAL CHIP 22K 5%	1/16W
FB108	1-414-445-11	FERRITE 0uH		R140	1-216-833-91	RES, CHIP 10K 5%	1/16W
FB109	1-414-445-11	FERRITE 0uH		R141	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
FB110	1-414-445-11	FERRITE 0uH		R142	1-216-827-11	METAL CHIP 3.3K 5%	1/16W
FB111	1-414-445-11	FERRITE 0uH		R143	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
FB112	1-414-229-11	INDUCTOR CHIP 0uH		R144	1-216-845-11	METAL CHIP 100K 5%	1/16W
FB113	1-414-229-11	INDUCTOR CHIP 0uH		R145	1-216-797-11	METAL CHIP 10 5%	1/16W
FB114	1-414-229-11	INDUCTOR CHIP 0uH		R146	1-216-797-11	METAL CHIP 10 5%	1/16W
FB115	1-414-229-11	INDUCTOR CHIP 0uH		R147	1-216-797-11	METAL CHIP 10 5%	1/16W
FB116	1-414-229-11	INDUCTOR CHIP 0uH		R148	1-216-797-11	METAL CHIP 10 5%	1/16W
FB117	1-414-229-11	INDUCTOR CHIP 0uH		R149	1-216-821-11	METAL CHIP 1K 5%	1/16W
FB118	1-414-445-11	FERRITE 0uH		R151	1-216-811-11	METAL CHIP 150 5%	1/16W
< IC >				R152	1-216-811-11	METAL CHIP 150 5%	1/16W
IC103	8-759-056-81	IC M66312FP-T1		R153	1-216-811-11	METAL CHIP 150 5%	1/16W
IC104	8-759-438-82	IC uPD16311GC-AB6		R154	1-216-811-11	METAL CHIP 150 5%	1/16W
IC105	8-749-923-29	IC RS-20E-T		R155	1-216-811-11	METAL CHIP 150 5%	1/16W
< FLUORESCENT INDICATOR >				R156	1-216-811-11	METAL CHIP 150 5%	1/16W
ND101	1-517-769-11	TUBE, FLUORESCENT INDICATOR		< SWITCH >			
< TRANSISTOR >				S101	1-762-333-21	SWITCH, TACTILE (RESET)	
Q101	8-729-424-18	TRANSISTOR UN2113-TX		S102	1-572-272-11	SWITCH, SLIDE (LOCAL/REMOTE)	
Q103	8-729-421-19	TRANSISTOR UN2213-TX		S104	1-572-342-11	SWITCH, SLIDE (TIMER)	
Q104	8-729-421-19	TRANSISTOR UN2213-TX		S105	1-572-342-11	SWITCH, SLIDE (AUDIO MONITOR)	
Q105	8-729-421-19	TRANSISTOR UN2213-TX		S106	1-762-333-21	SWITCH, TACTILE (INPUT SELECT)	
Q106	8-729-421-19	TRANSISTOR UN2213-TX		S107	1-572-342-11	SWITCH, SLIDE (COUNTER SELECT)	
Q107	8-729-421-19	TRANSISTOR UN2213-TX		S108	1-692-838-21	SWITCH, TACTILE (RUBBER) (EJECT)	
Q110	8-729-421-19	TRANSISTOR UN2213-TX		S109	1-692-838-21	SWITCH, TACTILE (RUBBER) (COUNTER RESET)	
< RESISTOR >				S111	1-692-838-21	SWITCH, TACTILE (RUBBER) (STOP)	
< RESISTOR >				S112	1-692-838-21	SWITCH, TACTILE (RUBBER) (REW)	
< RESISTOR >				S113	1-692-838-21	SWITCH, TACTILE (RUBBER) (PLAY)	
< RESISTOR >				S114	1-692-838-21	SWITCH, TACTILE (RUBBER) (FF)	
< RESISTOR >				S115	1-692-838-21	SWITCH, TACTILE (RUBBER) (PAUSE)	
< RESISTOR >				S116	1-692-838-21	SWITCH, TACTILE (RUBBER) (REC)	
< RESISTOR >				S117	1-762-333-21	SWITCH, TACTILE (↓)	

Ref. No.	Part No.	Description	Remark
S118	1-762-333-21	SWITCH, TACTILE (↑)	
S119	1-762-333-21	SWITCH, TACTILE (SET)	
S120	1-762-333-21	SWITCH, TACTILE (MENU)	
S121	1-692-838-21	SWITCH, TACTILE (RUBBER) (POWER)	
S122	1-692-838-21	SWITCH, TACTILE (RUBBER) (DUP)	
*	A-7073-576-A	HG-1 BOARD, COMPLETE	
		*****	
		(Ref.No. 8,000 Series)	
< CAPACITOR >			
C001	1-163-145-00	CERAMIC CHIP 0.0015uF 5% 50V	
C002	1-163-038-91	CERAMIC CHIP 0.1uF 25V	
C003	1-126-157-11	ELECT 10uF 20% 16V	
C004	1-124-259-11	ELECT 4.7uF 20% 35V	
C005	1-126-157-11	ELECT 10uF 20% 16V	
< CONNECTOR >			
CN001	1-958-813-11	HARNESS (DH-50)	
CN002	1-506-489-11	PIN, CONNECTOR 10P	
< DIODE >			
D001	8-719-106-89	DIODE RD15M-T1B2	
D002	8-719-106-89	DIODE RD15M-T1B2	
D003	8-719-800-76	DIODE 1SS123-T1	
D004	8-719-800-76	DIODE 1SS123-T1	
D005	8-719-022-76	DIODE RD30M-T1B	
D006	8-719-022-76	DIODE RD30M-T1B	
< IC >			
IC001	8-759-248-87	IC MM1256XF-BE	
IC002	8-759-929-26	IC TL431CPSR	
< TRANSISTOR >			
Q001	8-729-120-28	TRANSISTOR 2SC1623-T1-L5L6	
Q002	8-729-120-28	TRANSISTOR 2SC1623-T1-L5L6	
Q003	8-729-120-28	TRANSISTOR 2SC1623-T1-L5L6	
Q004	8-729-014-91	TRANSISTOR 2SD2185S-TX	
< RESISTOR >			
R001	1-208-830-11	METAL CHIP 100K 0.5% 1/10W	
R002	1-208-830-11	METAL CHIP 100K 0.5% 1/10W	
R003	1-208-830-11	METAL CHIP 100K 0.5% 1/10W	
R004	1-208-848-11	METAL CHIP 560K 0.5% 1/10W	
R005	1-208-830-11	METAL CHIP 100K 0.5% 1/10W	
R007	1-208-830-11	METAL CHIP 100K 0.5% 1/10W	
R008	1-208-814-91	METAL CHIP 22K 0.5% 1/10W	
R009	1-208-806-11	METAL CHIP 10K 0.5% 1/10W	
R010	1-208-822-11	METAL CHIP 47K 0.5% 1/10W	
R011	1-208-822-11	METAL CHIP 47K 0.5% 1/10W	
R012	1-216-208-00	RES, CHIP 2.7K 5% 1/8W	
R013	1-216-208-00	RES, CHIP 2.7K 5% 1/8W	
R014	1-208-795-11	METAL CHIP 3.6K 0.5% 1/10W	
R015	1-216-208-00	RES, CHIP 2.7K 5% 1/8W	
R016	1-216-208-00	RES, CHIP 2.7K 5% 1/8W	
< RELAY >			
RY001	1-755-259-11	RELAY	

Ref. No.	Part No.	Description	Remark
*	A-7073-471-A	HP-100 BOARD, COMPLETE	
		*****	
		(Ref.No. 5,000 Series)	
< CAPACITOR >			
C001	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C002	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C003	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C004	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C005	1-162-923-11	CERAMIC CHIP 47PF 5% 50V	
C006	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C007	1-162-923-11	CERAMIC CHIP 47PF 5% 50V	
C008	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C009	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C010	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C011	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
< CONNECTOR >			
CN001	1-566-528-11	CONNECTOR, FPC (ZIF) 12P	
< DIODE >			
D001	8-719-421-59	DIODE MA3075WA- (TX)	
D002	8-719-421-59	DIODE MA3075WA- (TX)	
D003	8-719-421-59	DIODE MA3075WA- (TX)	
D004	8-719-421-59	DIODE MA3075WA- (TX)	
D005	8-719-421-59	DIODE MA3075WA- (TX)	
D006	8-719-421-59	DIODE MA3075WA- (TX)	
D007	8-719-421-59	DIODE MA3075WA- (TX)	
D008	8-719-421-59	DIODE MA3075WA- (TX)	
D009	8-719-421-59	DIODE MA3075WA- (TX)	
D010	8-719-421-59	DIODE MA3075WA- (TX)	
D011	8-719-421-59	DIODE MA3075WA- (TX)	
D012	8-719-421-59	DIODE MA3075WA- (TX)	
< FERRITE BEAD >			
FB001	1-500-241-22	FERRITE 0uH	
FB002	1-500-241-22	FERRITE 0uH	
FB003	1-500-241-22	FERRITE 0uH	
< IC >			
IC001	8-759-369-73	IC NJM4556AM-A-TE2	
< JACK >			
J001	1-569-809-11	JACK (SMALL TYPE) (PHONES)	
< RESISTOR >			
R001	1-216-833-91	RES, CHIP 10K 5% 1/16W	
R002	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R003	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R004	1-216-833-91	RES, CHIP 10K 5% 1/16W	
R005	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R006	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R007	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R008	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R009	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R010	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R011	1-216-809-11	METAL CHIP 100 5% 1/16W	
R012	1-216-809-11	METAL CHIP 100 5% 1/16W	

Ref. No.	Part No.	Description	Remark
< VARIABLE RESISTOR >			
RV001	1-238-612-11	RES, VAR, CARBON 20K/20K (PHONE LEVEL)	
RV002	1-238-744-11	RES, VAR, CARBON, 50K (L REC LEVEL)	
RV003	1-238-744-11	RES, VAR, CARBON, 50K (R REC LEVEL)	
*****			
*	A-7067-130-A	JC-19 BOARD, COMPLETE (DSR-20MD)	
*	A-7067-126-A	JC-19 BOARD, COMPLETE (DSR-20MDP)	
*****			
(Ref.No. 2,000 Series)			
	7-685-132-19	SCREW +P 2.6X5 TYPE2 NON-SLIT	
< CAPACITOR >			
C101	1-104-847-11	TANTALUM CHIP 22uF	20% 4V
C102	1-104-847-11	TANTALUM CHIP 22uF	20% 4V
C103	1-104-847-11	TANTALUM CHIP 22uF	20% 4V
C107	1-135-177-21	TANTALUM CHIP 1uF	20% 20V
C108	1-135-177-21	TANTALUM CHIP 1uF	20% 20V
C109	1-135-177-21	TANTALUM CHIP 1uF	20% 20V
C110	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C111	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C112	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C116	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C117	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C118	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C119	1-162-915-11	CERAMIC CHIP 10PF	0.5PF 50V
C120	1-162-915-11	CERAMIC CHIP 10PF	0.5PF 50V
C121	1-162-915-11	CERAMIC CHIP 10PF	0.5PF 50V
C122	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C123	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C124	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C125	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C127	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C128	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C129	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C130	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C131	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C132	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C133	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C135	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C136	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C137	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C138	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C139	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C141	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C143	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C148	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C149	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C150	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C151	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C152	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C153	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C154	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C155	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C156	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C157	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C158	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C159	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C160	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C161	1-162-974-11	CERAMIC CHIP 0.01uF	50V

Ref. No.	Part No.	Description	Remark
C162	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C163	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C164	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C165	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C166	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C167	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C168	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C170	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C171	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C172	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C173	1-110-569-11	TANTALUM CHIP 47uF	20% 6.3V
C174	1-110-569-11	TANTALUM CHIP 47uF	20% 6.3V
C175	1-110-569-11	TANTALUM CHIP 47uF	20% 6.3V
C179	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C180	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C181	1-162-921-11	CERAMIC CHIP 33PF	5% 50V
C182	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C183	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C184	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C185	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C186	1-104-847-11	TANTALUM CHIP 22uF	20% 4V
C187	1-104-847-11	TANTALUM CHIP 22uF	20% 4V
C201	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C202	1-164-357-11	CERAMIC CHIP 1000PF	5% 50V
C203	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C204	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C205	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C206	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C207	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C208	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C209	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C210	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C211	1-107-826-91	CERAMIC CHIP 0.1uF	10% 16V
C212	1-104-847-11	TANTALUM CHIP 22uF	20% 4V
C214	1-162-926-11	CERAMIC CHIP 82PF	5% 50V
C215	1-164-392-11	CERAMIC CHIP 390PF	5% 50V
C216	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C217	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C218	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C219	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C220	1-110-569-11	TANTALUM CHIP 47uF	20% 6.3V
C221	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C223	1-135-177-21	TANTALUM CHIP 1uF	20% 20V
C224	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C225	1-135-177-21	TANTALUM CHIP 1uF	20% 20V
C226	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V
C227	1-162-967-11	CERAMIC CHIP 0.0033uF	10% 50V
C229	1-104-912-11	TANTALUM CHIP 3.3uF	20% 16V
C231	1-164-315-11	CERAMIC CHIP 470PF	5% 50V
C233	1-162-907-11	CERAMIC CHIP 2PF	0.25PF 50V
C234	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C238	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C241	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C243	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C245	1-162-917-11	CERAMIC CHIP 15PF	5% 50V
C246	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C247	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C248	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C249	1-110-569-11	TANTALUM CHIP 47uF	20% 4V
C250	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
C252	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C521	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C253	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C522	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C254	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C523	1-104-851-11	TANTALUM CHIP	10uF	20%	10V
C255	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V	C524	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C256	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C701	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C257	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V	C702	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C258	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C703	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C259	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C704	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C260	1-104-912-11	TANTALUM CHIP	3.3uF	20%	16V	C705	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C261	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V	C706	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C262	1-165-128-11	CERAMIC CHIP	0.22uF		16V	C707	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C401	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C708	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C402	1-164-360-11	CERAMIC CHIP	0.1uF		16V	C709	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C403	1-164-360-11	CERAMIC CHIP	0.1uF		16V	C710	1-104-847-11	TANTALUM CHIP	22uF	20%	4V
C404	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C711	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C405	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C712	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C406	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C713	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C407	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V	C714	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C408	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V	C715	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C410	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C801	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C412	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C802	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C413	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C803	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C421	1-111-253-11	TANTALUM CHIP	100uF	20%	6.3V	C804	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C422	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C807	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C423	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C809	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C424	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C810	1-110-569-11	TANTALUM CHIP	47uF	20%	6.3V
C425	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	C811	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C426	1-164-505-11	CERAMIC CHIP	2.2uF		16V	C812	1-110-569-11	TANTALUM CHIP	47uF	20%	6.3V
C427	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C813	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C428	1-164-360-11	CERAMIC CHIP	0.1uF		16V	C814	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C429	1-164-360-11	CERAMIC CHIP	0.1uF		16V	C815	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C430	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C816	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C431	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C831	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C432	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C832	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C433	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C833	1-110-569-11	TANTALUM CHIP	47uF	20%	6.3V
C434	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C834	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C435	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	C835	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C436	1-164-505-11	CERAMIC CHIP	2.2uF		16V	C837	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C437	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C838	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C438	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C839	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C439	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	C840	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C440	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	C843	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C441	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C844	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C442	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V	C845	1-104-847-11	TANTALUM CHIP	22uF	20%	4V
C501	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C846	1-104-847-11	TANTALUM CHIP	22uF	20%	4V
C502	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C847	1-164-676-11	CERAMIC CHIP	2200PF	5%	16V
C503	1-104-851-11	TANTALUM CHIP	10uF	20%	10V	C848	1-164-676-11	CERAMIC CHIP	2200PF	5%	16V
C504	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C849	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C505	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C850	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C506	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C851	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C511	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V	C852	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C512	1-164-360-11	CERAMIC CHIP	0.1uF		16V	C853	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C513	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	C854	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C514	1-164-360-11	CERAMIC CHIP	0.1uF		16V	C855	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C515	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C856	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C516	1-104-847-11	TANTALUM CHIP	22uF	20%	4V	C857	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C517	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C859	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C518	1-162-917-11	CERAMIC CHIP	15PF	5%	50V	C860	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C519	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C861	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C520	1-162-919-11	CERAMIC CHIP	22PF	5%	50V	C862	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V

Ref. No.	Part No.	Description	Remark
C863	1-165-176-11	CERAMIC CHIP 0.047uF 10%	16V
C864	1-115-467-11	CERAMIC CHIP 0.22uF 10%	10V
C865	1-110-569-11	TANTALUM CHIP 47uF 20%	6.3V
C901	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C902	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C903	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C904	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C905	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C906	1-110-569-11	TANTALUM CHIP 47uF 20%	6.3V
C907	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C908	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C909	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C910	1-115-467-11	CERAMIC CHIP 0.22uF 10%	10V
C911	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C912	1-107-826-91	CERAMIC CHIP 0.1uF 10%	16V
C914	1-162-966-11	CERAMIC CHIP 0.0022uF 10%	50V
C915	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C916	1-162-923-11	CERAMIC CHIP 47PF 5%	50V
C917	1-135-181-21	TANTALUM CHIP 4.7uF 20%	6.3V
C919	1-164-357-11	CERAMIC CHIP 1000PF 5%	50V
C920	1-164-357-11	CERAMIC CHIP 1000PF 5%	50V
C921	1-164-357-11	CERAMIC CHIP 1000PF 5%	50V
C922	1-115-566-11	CERAMIC CHIP 4.7uF 10%	10V
C924	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C926	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C927	1-162-908-11	CERAMIC CHIP 3PF 0.25PF	50V
C929	1-164-357-11	CERAMIC CHIP 1000PF 5%	50V
C930	1-162-927-11	CERAMIC CHIP 100PF 5%	50V
C931	1-115-467-11	CERAMIC CHIP 0.22uF 10%	10V
C932	1-162-927-11	CERAMIC CHIP 100PF 5%	50V
C933	1-164-357-11	CERAMIC CHIP 1000PF 5%	50V
C934	1-162-927-11	CERAMIC CHIP 100PF 5%	50V
C935	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C936	1-162-927-11	CERAMIC CHIP 100PF 5%	50V
C937	1-164-357-11	CERAMIC CHIP 1000PF 5%	50V
C940	1-164-357-11	CERAMIC CHIP 1000PF 5%	50V
C941	1-109-982-11	CERAMIC CHIP 1uF 10%	10V
C942	1-107-826-91	CERAMIC CHIP 0.1uF 10%	16V

## &lt; CONNECTOR &gt;

CN101	1-506-474-11	PIN, CONNECTOR 9P
CN103	1-774-666-11	CONNECTOR, FFC/FPC 30P
CN104	1-774-666-11	CONNECTOR, FFC/FPC 30P
CN411	1-750-345-11	CONNECTOR, FFC/EPC (ZIF) 30P
CN412	1-750-345-11	CONNECTOR, FFC/EPC (ZIF) 30P
* CN501	1-691-591-11	PIN, CONNECTOR (1.5mm) (SMD) 8P
CN503	1-750-303-41	CONNECTOR, BOARD TO BOARD 20P
* CN701	1-564-005-11	PIN, CONNECTOR 6P
* CN831	1-691-591-11	PIN, CONNECTOR (1.5mm) (SMD) 8P

## &lt; TRIMMER &gt;

CT201	1-141-423-61	CAP, ADJ 20PF (AFC)
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## &lt; DIODE &gt;

D201	8-719-041-39	DIODE KV1470TL00
D421	8-719-027-95	DIODE HSM88WK-TL
D422	8-719-055-86	DIODE KV1470TL1-3
D423	8-719-027-95	DIODE HSM88WK-TL
D424	8-719-055-86	DIODE KV1470TL1-3
D425	8-719-055-86	DIODE KV1470TL1-3

Ref. No.	Part No.	Description	Remark
D501	8-719-073-01	DIODE MA111-TX	
D503	8-719-421-27	DIODE MA728-TX	
D504	8-719-073-01	DIODE MA111-TX	
D901	8-719-073-01	DIODE MA111-TX	
D902	8-719-055-86	DIODE KV1470TL1-3	
D903	8-719-073-01	DIODE MA111-TX	
D910	8-719-073-01	DIODE MA111-TX	
< FERRITE BEAD >			
FB401	1-543-955-22	FERRITE 0uH	
FB402	1-543-955-22	FERRITE 0uH	
< FILTER >			
FL101	1-233-345-21	FILTER, LOW PASS (5.5MHz)	
FL102	1-233-345-21	FILTER, LOW PASS (5.5MHz)	
FL103	1-233-345-21	FILTER, LOW PASS (5.5MHz)	
< IC >			
IC009	8-759-338-78	IC BA10324AFV-E2	
IC010	8-759-338-78	IC BA10324AFV-E2	
IC011	8-759-338-78	IC BA10324AFV-E2	
IC012	8-759-338-78	IC BA10324AFV-E2	
IC013	8-759-510-71	IC BA10358F-E2	
IC014	8-759-359-51	IC NJM431M (TE2)	
IC015	8-752-352-09	IC CXD2300Q-T4	
IC016	8-752-352-09	IC CXD2300Q-T4	
IC017	8-752-352-09	IC CXD2300Q-T4	
IC018	8-759-523-03	IC TC74HC4066AFT (EL)	
IC019	8-759-447-75	IC S-81322HG-KW-T1	
IC200	8-752-380-04	IC CXD3100R	
IC205	8-759-343-09	IC CXD2193AR-ER	
IC206	8-759-058-62	IC TC7S08FU (TE85R)	
IC207	8-759-368-81	IC TK11630UTL	
IC209	8-759-523-97	IC TC74VHC123AFT (EL)	
IC210	8-759-485-79	IC TC7SET08FU (TE85R)	
IC211	8-759-239-58	IC TC74HC221AF (EL)	
IC212	8-759-082-55	IC TC7W00FU (TE12R)	
IC213	8-759-523-02	IC TC74HC4053AFT (EL)	
IC214	8-759-491-31	IC TC74VHCT00AF (EL)	
IC401	8-752-380-73	IC CXD3103R	
IC402	8-759-328-28	IC ZA4024	
IC403	8-759-328-28	IC ZA4024	
IC410	8-759-433-17	IC uPD482445LG4-B10-9MH-E2-HDC	
IC411	8-759-525-63	IC uPD82094GD-001-LKL	
IC421	8-752-884-57	IC CXP912032-074R	
IC422	8-752-378-75	IC CXD3106R	
IC501	8-759-537-46	IC S579174PZ-TEB	
IC502	8-759-445-93	IC AK6440AM-E2	
IC503	8-759-058-58	IC TC7S04FU (TE85R)	
IC504	8-759-427-85	IC MB88146APFV-G-BND-ER	
IC510	8-759-431-95	IC S-81230SGUP-DQB-T1	
IC511	8-759-512-69	IC S-81350HG-KD-T1	
IC701	8-759-430-56	IC CXD2194AR	
IC702	8-759-432-00	IC TSB11LV01PT-TEB	
IC703	8-759-465-99	IC HD6433837TB55X	
IC801	8-752-352-30	IC CXD2705AQ	
IC802	8-759-530-57	IC TLV431ACDBV2	
IC804	8-759-465-80	IC TC74ACT08FS (EL)	
IC805	8-752-379-31	IC CXD3107R	
IC807	8-759-475-36	IC TC74LCX08FT (EL)	

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
IC831	8-759-358-47	IC NJM2115V (TE2)		Q030	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-B
IC832	8-759-358-47	IC NJM2115V (TE2)		Q031	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-B
IC833	8-759-358-47	IC NJM2115V (TE2)		Q032	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
IC835	8-759-358-47	IC NJM2115V (TE2)		Q033	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
IC836	8-759-358-47	IC NJM2115V (TE2)		Q034	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
IC837	8-759-471-38	IC AK4520A-VF-E2		Q035	8-729-905-35	TRANSISTOR	2SC4081T106R
IC838	8-759-357-67	IC TK15125MTL		Q036	8-729-905-35	TRANSISTOR	2SC4081T106R
IC840	8-759-358-47	IC NJM2115V (TE2)		Q037	8-729-905-35	TRANSISTOR	2SC4081T106R
IC841	8-759-494-88	IC TC75S56F (TE85R)		Q039	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
IC901	8-759-523-97	IC TC74VHC123AFT (EL)		Q040	8-729-905-35	TRANSISTOR	2SC4081T106R
IC902	8-759-523-95	IC TC74VHC74FT (EL))		Q041	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
IC903	8-759-083-94	IC TC7W74FU (TE12R)		Q042	8-729-905-35	TRANSISTOR	2SC4081T106R
IC904	8-759-429-28	IC CXD8630R		Q043	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
IC906	8-759-523-97	IC TC74VHC123AFT (EL)		Q044	8-729-905-35	TRANSISTOR	2SC4081T106R
IC907	8-759-195-81	IC TC7S86FU (TE85R)		Q045	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
IC908	8-759-082-58	IC TC7W08FU (TE12R)		Q048	8-729-402-42	TRANSISTOR	UN5213-TX
IC909	8-759-523-95	IC TC74VHC74FT (EL)		Q050	8-729-905-35	TRANSISTOR	2SC4081T106R
IC911	8-759-327-04	IC CXD2913Q		Q051	8-729-427-83	TRANSISTOR	XP6501-TXE
IC914	8-759-485-40	IC TLV2231CDBV2		Q052	8-729-905-35	TRANSISTOR	2SC4081T106R
IC915	8-759-082-61	IC TC4W53FU (TE12R)		Q053	8-729-427-83	TRANSISTOR	XP6501-TXE
IC916	8-759-058-62	IC TC7S08FU (TE85R)		Q200	8-729-905-35	TRANSISTOR	2SC4081T106R
< COIL >				Q201	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
L011	1-414-398-11	INDUCTOR	10uH	Q501	8-729-905-35	TRANSISTOR	2SC4081T106R
L012	1-414-398-11	INDUCTOR	10uH	Q502	8-729-905-35	TRANSISTOR	2SC4081T106R
L013	1-414-398-11	INDUCTOR	10uH	Q504	8-729-403-35	TRANSISTOR	UN5113-TX
L014	1-414-398-11	INDUCTOR	10uH	Q505	8-729-427-70	TRANSISTOR	XP4401-TXE
L015	1-414-398-11	INDUCTOR	10uH	Q506	8-729-101-07	TRANSISTOR	2SB798-T1-DL DK
L016	1-414-398-11	INDUCTOR	10uH	Q801	8-729-905-35	TRANSISTOR	2SC4081T106R
L017	1-414-398-11	INDUCTOR	10uH	Q832	8-729-015-74	TRANSISTOR	UN5111-TX
L018	1-414-398-11	INDUCTOR	10uH	Q902	8-729-905-35	TRANSISTOR	2SC4081T106R
L102	1-414-398-11	INDUCTOR	10uH	Q903	8-729-402-42	TRANSISTOR	UN5213-TX
L200	1-414-398-11	INDUCTOR	10uH	Q910	8-729-015-76	TRANSISTOR	UN5211-TX
L202	1-410-390-11	INDUCTOR CHIP	56uH	Q911	8-729-015-76	TRANSISTOR	UN5211-TX
L203	1-414-398-11	INDUCTOR	10uH	< RESISTOR >			
L204	1-414-398-11	INDUCTOR	10uH	R002	1-216-864-11	METAL CHIP	0 5% 1/16W
L205	1-411-275-21	COIL, VARIABLE		R003	1-414-760-21	FERRITE	0uH
L206	1-410-655-31	INDUCTOR CHIP	120uH	R004	1-414-760-21	FERRITE	0uH
L401	1-414-398-11	INDUCTOR	10uH	R005	1-414-760-21	FERRITE	0uH
L402	1-414-398-11	INDUCTOR	10uH	R009	1-414-760-21	FERRITE	0uH
L421	1-410-740-31	INDUCTOR CHIP	0.82uH	R010	1-216-864-11	METAL CHIP	0 5% 1/16W
L422	1-410-378-11	INDUCTOR CHIP	5.6uH	R011	1-216-864-11	METAL CHIP	0 5% 1/16W
L423	1-414-398-11	INDUCTOR	10uH	R012	1-216-864-11	METAL CHIP	0 5% 1/16W
L424	1-410-385-11	INDUCTOR CHIP	22uH	R013	1-216-864-11	METAL CHIP	0 5% 1/16W
L501	1-414-398-11	INDUCTOR	10uH	R014	1-216-864-11	METAL CHIP	0 5% 1/16W
L701	1-410-377-31	INDUCTOR CHIP	4.7uH	R015	1-216-864-11	METAL CHIP	0 5% 1/16W
L702	1-414-398-11	INDUCTOR	10uH	R016	1-216-864-11	METAL CHIP	0 5% 1/16W
L703	1-410-393-11	INDUCTOR CHIP	100uH	R017	1-414-760-21	FERRITE	0uH
L801	1-410-369-11	INDUCTOR CHIP	1uH	R018	1-414-760-21	FERRITE	0uH
L802	1-410-381-11	INDUCTOR CHIP	10uH	R020	1-414-760-21	FERRITE	0uH
L901	1-414-398-11	INDUCTOR	10uH	R021	1-414-760-21	FERRITE	0uH
L904	1-414-398-11	INDUCTOR	10uH	R023	1-216-864-11	METAL CHIP	0 5% 1/16W
L905	1-411-273-21	COIL, VARIABLE		R030	1-414-760-21	FERRITE	0uH
L907	1-414-398-11	INDUCTOR	10uH	R033	1-216-864-11	METAL CHIP	0 5% 1/16W
< TRANSISTOR >				R034	1-216-864-11	METAL CHIP	0 5% 1/16W
Q026	8-729-905-35	TRANSISTOR	2SC4081T106R	R035	1-216-864-11	METAL CHIP	0 5% 1/16W
Q027	8-729-905-35	TRANSISTOR	2SC4081T106R	R036	1-216-864-11	METAL CHIP	0 5% 1/16W
Q028	8-729-905-35	TRANSISTOR	2SC4081T106R	R037	1-216-864-11	METAL CHIP	0 5% 1/16W
Q029	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-B	R038	1-414-760-21	FERRITE	0uH
				R039	1-216-864-11	METAL CHIP	0 5% 1/16W



Ref. No.	Part No.	Description		Remark		Ref. No.	Part No.	Description		Remark
R040	1-414-760-21	FERRITE	0uH			R147	1-216-821-11	METAL CHIP	1K	5% 1/16W
R041	1-414-760-21	FERRITE	0uH			R148	1-216-830-11	METAL CHIP	5.6K	5% 1/16W
R042	1-414-760-21	FERRITE	0uH			R149	1-216-824-11	METAL CHIP	1.8K	5% 1/16W
R043	1-216-864-11	METAL CHIP	0	5%	1/16W	R150	1-216-824-11	METAL CHIP	1.8K	5% 1/16W
R044	1-414-760-21	FERRITE	0uH			R151	1-216-824-11	METAL CHIP	1.8K	5% 1/16W
R045	1-216-864-11	METAL CHIP	0	5%	1/16W	R152	1-216-835-11	METAL CHIP	15K	5% 1/16W
R046	1-216-864-11	METAL CHIP	0	5%	1/16W	R154	1-216-809-11	METAL CHIP	100	5% 1/16W
R047	1-216-864-11	METAL CHIP	0	5%	1/16W	R155	1-216-809-11	METAL CHIP	100	5% 1/16W
R048	1-414-760-21	FERRITE	0uH			R156	1-216-809-11	METAL CHIP	100	5% 1/16W
R049	1-414-760-21	FERRITE	0uH			R157	1-216-864-11	METAL CHIP	0	5% 1/16W
R050	1-414-760-21	FERRITE	0uH			R159	1-216-805-11	METAL CHIP	47	5% 1/16W
R052	1-414-760-21	FERRITE	0uH			R160	1-216-821-11	METAL CHIP	1K	5% 1/16W
R053	1-414-760-21	FERRITE	0uH			R161	1-216-821-11	METAL CHIP	1K	5% 1/16W
R054	1-414-760-21	FERRITE	0uH			R162	1-216-823-11	METAL CHIP	1.5K	5% 1/16W
R055	1-414-760-21	FERRITE	0uH			R163	1-216-864-11	METAL CHIP	0	5% 1/16W
R056	1-414-760-21	FERRITE	0uH			R164	1-216-816-11	METAL CHIP	390	5% 1/16W
R057	1-414-760-21	FERRITE	0uH			R165	1-216-864-11	METAL CHIP	0	5% 1/16W
R059	1-216-837-11	METAL CHIP	22K	5%	1/16W	R166	1-216-829-11	METAL CHIP	4.7K	5% 1/16W
R060	1-216-818-11	METAL CHIP	560	5%	1/16W	R167	1-216-823-11	METAL CHIP	1.5K	5% 1/16W
R061	1-216-817-11	METAL CHIP	470	5%	1/16W	R168	1-216-835-11	METAL CHIP	15K	5% 1/16W
R062	1-216-821-11	METAL CHIP	1K	5%	1/16W	R169	1-216-832-11	METAL CHIP	8.2K	5% 1/16W
R063	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R170	1-216-864-11	METAL CHIP	0	5% 1/16W
R064	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R173	1-216-821-11	METAL CHIP	1K	5% 1/16W
R065	1-216-837-11	METAL CHIP	22K	5%	1/16W	R174	1-216-821-11	METAL CHIP	1K	5% 1/16W
R067	1-216-818-11	METAL CHIP	560	5%	1/16W	R175	1-216-813-11	METAL CHIP	220	5% 1/16W
R068	1-216-817-11	METAL CHIP	470	5%	1/16W	R176	1-216-821-11	METAL CHIP	1K	5% 1/16W
R069	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R177	1-216-821-11	METAL CHIP	1K	5% 1/16W
R070	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R178	1-216-817-11	METAL CHIP	470	5% 1/16W
R071	1-216-821-11	METAL CHIP	1K	5%	1/16W	R182	1-216-821-11	METAL CHIP	1K	5% 1/16W
R113	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R183	1-216-821-11	METAL CHIP	1K	5% 1/16W
R115	1-216-837-11	METAL CHIP	22K	5%	1/16W	R184	1-216-817-11	METAL CHIP	470	5% 1/16W
R116	1-216-837-11	METAL CHIP	22K	5%	1/16W	R185	1-216-821-11	METAL CHIP	1K	5% 1/16W
R117	1-216-837-11	METAL CHIP	22K	5%	1/16W	R186	1-216-821-11	METAL CHIP	1K	5% 1/16W
R118	1-216-821-11	METAL CHIP	1K	5%	1/16W	R187	1-216-817-11	METAL CHIP	470	5% 1/16W
R119	1-216-821-11	METAL CHIP	1K	5%	1/16W	R192	1-216-821-11	METAL CHIP	1K	5% 1/16W
R120	1-216-821-11	METAL CHIP	1K	5%	1/16W	R199	1-216-821-11	METAL CHIP	1K	5% 1/16W
R121	1-216-864-11	METAL CHIP	0	5%	1/16W	R201	1-216-821-11	METAL CHIP	1K	5% 1/16W
R122	1-216-864-11	METAL CHIP	0	5%	1/16W	R203	1-216-864-11	METAL CHIP	0	5% 1/16W
R123	1-216-864-11	METAL CHIP	0	5%	1/16W	R204	1-216-827-11	METAL CHIP	3.3K	5% 1/16W
R124	1-216-833-91	RES, CHIP	10K	5%	1/16W	R205	1-216-864-11	METAL CHIP	0	5% 1/16W
R125	1-216-833-91	RES, CHIP	10K	5%	1/16W	R206	1-216-864-11	METAL CHIP	0	5% 1/16W
R126	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R207	1-216-864-11	METAL CHIP	0	5% 1/16W
R127	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	R208	1-216-827-11	METAL CHIP	3.3K	5% 1/16W
R128	1-216-809-11	METAL CHIP	100	5%	1/16W	R209	1-216-864-11	METAL CHIP	0	5% 1/16W
R129	1-216-809-11	METAL CHIP	100	5%	1/16W	R210	1-216-864-11	METAL CHIP	0	5% 1/16W
R130	1-216-809-11	METAL CHIP	100	5%	1/16W	R211	1-216-833-91	RES, CHIP	10K	5% 1/16W
R131	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R212	1-216-864-11	METAL CHIP	0	5% 1/16W
R133	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R213	1-216-825-11	METAL CHIP	2.2K	5% 1/16W
R134	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R214	1-216-833-91	RES, CHIP	10K	5% 1/16W
R135	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R215	1-216-840-11	METAL CHIP	39K	5% 1/16W
R136	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	R216	1-216-864-11	METAL CHIP	0	5% 1/16W
R137	1-216-833-91	RES, CHIP	10K	5%	1/16W	R217	1-216-828-11	METAL CHIP	3.9K	5% 1/16W
R138	1-216-833-91	RES, CHIP	10K	5%	1/16W	R218	1-216-864-11	METAL CHIP	0	5% 1/16W
R139	1-216-821-11	METAL CHIP	1K	5%	1/16W	R219	1-216-864-11	METAL CHIP	0	5% 1/16W
R140	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R246	1-216-864-11	METAL CHIP	0	5% 1/16W
R141	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R247	1-216-821-11	METAL CHIP	1K	5% 1/16W
R142	1-216-821-11	METAL CHIP	1K	5%	1/16W	R248	1-216-817-11	METAL CHIP	470	5% 1/16W
R143	1-216-835-11	METAL CHIP	15K	5%	1/16W	R249	1-216-817-11	METAL CHIP	470	5% 1/16W
R145	1-216-821-11	METAL CHIP	1K	5%	1/16W	R250	1-216-821-11	METAL CHIP	1K	5% 1/16W
R146	1-216-821-11	METAL CHIP	1K	5%	1/16W	R256	1-216-833-91	RES, CHIP	10K	5% 1/16W

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R259	1-216-832-11	METAL CHIP	8.2K 5% 1/16W	R428	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R260	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R429	1-216-845-11	METAL CHIP	100K 5% 1/16W
R261	1-216-814-11	METAL CHIP	270 5% 1/16W	R430	1-216-805-11	METAL CHIP	47 5% 1/16W
R262	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R431	1-216-817-11	METAL CHIP	470 5% 1/16W
R264	1-216-833-91	RES, CHIP	10K 5% 1/16W	R432	1-216-845-11	METAL CHIP	100K 5% 1/16W
R266	1-216-833-91	RES, CHIP	10K 5% 1/16W	R433	1-216-845-11	METAL CHIP	100K 5% 1/16W
R268	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R434	1-216-805-11	METAL CHIP	47 5% 1/16W
R269	1-216-814-11	METAL CHIP	270 5% 1/16W	R435	1-216-845-11	METAL CHIP	100K 5% 1/16W
R270	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R437	1-216-864-11	METAL CHIP	0 5% 1/16W
R271	1-216-864-11	METAL CHIP	0 5% 1/16W	R438	1-216-864-11	METAL CHIP	0 5% 1/16W
R272	1-216-855-11	METAL CHIP	680K 5% 1/16W	R439	1-216-864-11	METAL CHIP	0 5% 1/16W
R273	1-216-839-11	METAL CHIP	33K 5% 1/16W	R440	1-216-833-91	RES, CHIP	10K 5% 1/16W
R274	1-216-864-11	METAL CHIP	0 5% 1/16W	R441	1-216-833-91	RES, CHIP	10K 5% 1/16W
R276	1-216-833-91	RES, CHIP	10K 5% 1/16W	R442	1-216-815-11	METAL CHIP	330 5% 1/16W
R277	1-216-839-11	METAL CHIP	33K 5% 1/16W	R443	1-216-805-11	METAL CHIP	47 5% 1/16W
R278	1-216-864-11	METAL CHIP	0 5% 1/16W	R444	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R279	1-216-839-11	METAL CHIP	33K 5% 1/16W	R445	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R280	1-216-833-91	RES, CHIP	10K 5% 1/16W	R446	1-216-845-11	METAL CHIP	100K 5% 1/16W
R281	1-216-821-11	METAL CHIP	1K 5% 1/16W	R447	1-216-845-11	METAL CHIP	100K 5% 1/16W
R282	1-216-839-11	METAL CHIP	33K 5% 1/16W	R448	1-216-845-11	METAL CHIP	100K 5% 1/16W
R285	1-216-864-11	METAL CHIP	0 5% 1/16W	R449	1-216-821-11	METAL CHIP	1K 5% 1/16W
R286	1-216-833-91	RES, CHIP	10K 5% 1/16W	R450	1-216-857-11	METAL CHIP	1M 5% 1/16W
R288	1-216-833-91	RES, CHIP	10K 5% 1/16W	R451	1-216-845-11	METAL CHIP	100K 5% 1/16W
R292	1-216-833-91	RES, CHIP	10K 5% 1/16W	R452	1-216-845-11	METAL CHIP	100K 5% 1/16W
R295	1-216-864-11	METAL CHIP	0 5% 1/16W	R453	1-216-845-11	METAL CHIP	100K 5% 1/16W
R297	1-216-864-11	METAL CHIP	0 5% 1/16W	R454	1-216-845-11	METAL CHIP	100K 5% 1/16W
R298	1-216-864-11	METAL CHIP	0 5% 1/16W	R455	1-216-845-11	METAL CHIP	100K 5% 1/16W
R299	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R456	1-216-845-11	METAL CHIP	100K 5% 1/16W
R300	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R457	1-216-845-11	METAL CHIP	100K 5% 1/16W
R301	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R458	1-216-845-11	METAL CHIP	100K 5% 1/16W
R302	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R459	1-216-845-11	METAL CHIP	100K 5% 1/16W
R303	1-216-821-11	METAL CHIP	1K 5% 1/16W	R460	1-216-845-11	METAL CHIP	100K 5% 1/16W
R304	1-216-815-11	METAL CHIP	330 5% 1/16W	R461	1-216-864-11	METAL CHIP	0 5% 1/16W
R313	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	R462	1-216-864-11	METAL CHIP	0 5% 1/16W
R314	1-216-815-11	METAL CHIP	330 5% 1/16W	R463	1-216-864-11	METAL CHIP	0 5% 1/16W
R315	1-216-815-11	METAL CHIP	330 5% 1/16W	R464	1-216-864-11	METAL CHIP	0 5% 1/16W
R318	1-216-295-91	SHORT	0 0.5% 1/16W (DSR-20MD)	R465	1-216-864-11	METAL CHIP	0 5% 1/16W
R319	1-218-864-11	METAL CHIP	5.1K 0.5% 1/16W (DSR-20MDP)	R466	1-216-864-11	METAL CHIP	0 5% 1/16W
R319	1-218-865-11	METAL CHIP	5.6K 0.5% 1/16W (DSR-20MDP)	R467	1-216-864-11	METAL CHIP	0 5% 1/16W
R320	1-218-831-11	METAL CHIP	220 0.5% 1/16W	R468	1-216-864-11	METAL CHIP	0 5% 1/16W
R321	1-218-851-11	METAL CHIP	1.5K 0.5% 1/16W	R469	1-216-821-11	METAL CHIP	1K 5% 1/16W
R322	1-218-831-11	METAL CHIP	220 0.5% 1/16W	R470	1-216-821-11	METAL CHIP	1K 5% 1/16W
R339	1-216-864-11	METAL CHIP	0 5% 1/16W	R471	1-216-821-11	METAL CHIP	1K 5% 1/16W
R340	1-216-841-11	METAL CHIP	47K 5% 1/16W	R472	1-216-821-11	METAL CHIP	1K 5% 1/16W
R341	1-216-841-11	METAL CHIP	47K 5% 1/16W	R502	1-216-809-11	METAL CHIP	100 5% 1/16W
R342	1-216-864-11	METAL CHIP	0 5% 1/16W	R503	1-216-809-11	METAL CHIP	100 5% 1/16W
R343	1-216-840-11	METAL CHIP	39K 5% 1/16W	R504	1-216-864-11	METAL CHIP	0 5% 1/16W
R344	1-216-821-11	METAL CHIP	1K 5% 1/16W	R505	1-216-809-11	METAL CHIP	100 5% 1/16W
R345	1-216-821-11	METAL CHIP	1K 5% 1/16W	R506	1-216-864-11	METAL CHIP	0 5% 1/16W
R346	1-216-833-91	RES, CHIP	10K 5% 1/16W	R507	1-216-809-11	METAL CHIP	100 5% 1/16W
R347	1-218-871-11	METAL CHIP	10K 0.5% 1/16W	R508	1-216-864-11	METAL CHIP	0 5% 1/16W
R401	1-216-821-11	METAL CHIP	1K 5% 1/16W	R509	1-216-833-91	RES, CHIP	10K 5% 1/16W
R422	1-216-805-11	METAL CHIP	47 5% 1/16W	R510	1-216-864-11	METAL CHIP	0 5% 1/16W
R423	1-216-805-11	METAL CHIP	47 5% 1/16W	R511	1-216-833-91	RES, CHIP	10K 5% 1/16W
R424	1-216-805-11	METAL CHIP	47 5% 1/16W	R512	1-216-809-11	METAL CHIP	100 5% 1/16W
R425	1-216-833-91	RES, CHIP	10K 5% 1/16W	R513	1-216-809-11	METAL CHIP	100 5% 1/16W
R426	1-216-821-11	METAL CHIP	1K 5% 1/16W	R514	1-216-809-11	METAL CHIP	100 5% 1/16W
R427	1-216-833-91	RES, CHIP	10K 5% 1/16W	R515	1-216-809-11	METAL CHIP	100 5% 1/16W
				R517	1-216-809-11	METAL CHIP	100 5% 1/16W
				R518	1-216-809-11	METAL CHIP	100 5% 1/16W

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
R524	1-216-841-11	METAL CHIP	47K	5%	1/16W	R701	1-216-833-91	RES, CHIP	10K	5%	1/16W
R526	1-216-841-11	METAL CHIP	47K	5%	1/16W	R702	1-216-821-11	METAL CHIP	1K	5%	1/16W
R529	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R703	1-216-857-11	METAL CHIP	1M	5%	1/16W
R530	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R704	1-216-833-91	RES, CHIP	10K	5%	1/16W
R531	1-216-809-11	METAL CHIP	100	5%	1/16W	R705	1-216-833-91	RES, CHIP	10K	5%	1/16W
R532	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R706	1-216-821-11	METAL CHIP	1K	5%	1/16W
R533	1-216-809-11	METAL CHIP	100	5%	1/16W	R707	1-216-845-11	METAL CHIP	100K	5%	1/16W
R534	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	R708	1-216-864-11	METAL CHIP	0	5%	1/16W
R535	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	R709	1-216-845-11	METAL CHIP	100K	5%	1/16W
R536	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R710	1-216-845-11	METAL CHIP	100K	5%	1/16W
R537	1-216-841-11	METAL CHIP	47K	5%	1/16W	R711	1-216-833-91	RES, CHIP	10K	5%	1/16W
R538	1-216-841-11	METAL CHIP	47K	5%	1/16W	R712	1-216-833-91	RES, CHIP	10K	5%	1/16W
R539	1-216-841-11	METAL CHIP	47K	5%	1/16W	R713	1-216-845-11	METAL CHIP	100K	5%	1/16W
R540	1-216-841-11	METAL CHIP	47K	5%	1/16W	R714	1-216-833-91	RES, CHIP	10K	5%	1/16W
R541	1-216-841-11	METAL CHIP	47K	5%	1/16W	R715	1-216-845-11	METAL CHIP	100K	5%	1/16W
R542	1-216-841-11	METAL CHIP	47K	5%	1/16W	R717	1-218-873-11	METAL CHIP	12K	0.5%	1/16W
R543	1-216-821-11	METAL CHIP	1K	5%	1/16W	R718	1-218-873-11	METAL CHIP	12K	0.5%	1/16W
R544	1-216-821-11	METAL CHIP	1K	5%	1/16W	R719	1-216-864-11	METAL CHIP	0	5%	1/16W
R545	1-216-821-11	METAL CHIP	1K	5%	1/16W	R720	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
R546	1-216-791-11	METAL CHIP	3.3	5%	1/16W	R721	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
R547	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R722	1-216-806-11	RES, CHIP	56	5%	1/16W
R548	1-216-821-11	METAL CHIP	1K	5%	1/16W	R723	1-216-806-11	RES, CHIP	56	5%	1/16W
R549	1-216-821-11	METAL CHIP	1K	5%	1/16W	R724	1-216-806-11	RES, CHIP	56	5%	1/16W
R550	1-216-841-11	METAL CHIP	47K	5%	1/16W	R725	1-216-806-11	RES, CHIP	56	5%	1/16W
R551	1-216-821-11	METAL CHIP	1K	5%	1/16W	R726	1-216-845-11	METAL CHIP	100K	5%	1/16W
R553	1-216-797-11	METAL CHIP	10	5%	1/16W	R727	1-216-864-11	METAL CHIP	0	5%	1/16W
R554	1-216-797-11	METAL CHIP	10	5%	1/16W	R801	1-216-833-91	RES, CHIP	10K	5%	1/16W
R555	1-216-833-91	RES, CHIP	10K	5%	1/16W	R802	1-216-845-11	METAL CHIP	100K	5%	1/16W
R556	1-216-833-91	RES, CHIP	10K	5%	1/16W	R803	1-216-809-11	METAL CHIP	100	5%	1/16W
R557	1-216-833-91	RES, CHIP	10K	5%	1/16W	R813	1-216-837-11	METAL CHIP	22K	5%	1/16W
R558	1-216-821-11	METAL CHIP	1K	5%	1/16W	R814	1-216-142-00	RES, CHIP	4.7	5%	1/8W
R559	1-216-821-11	METAL CHIP	1K	5%	1/16W	R818	1-216-845-11	METAL CHIP	100K	5%	1/16W
R560	1-216-821-11	METAL CHIP	1K	5%	1/16W	R819	1-216-837-11	METAL CHIP	22K	5%	1/16W
R561	1-216-821-11	METAL CHIP	1K	5%	1/16W	R821	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R562	1-216-821-11	METAL CHIP	1K	5%	1/16W	R822	1-216-845-11	METAL CHIP	100K	5%	1/16W
R563	1-216-821-11	METAL CHIP	1K	5%	1/16W	R823	1-216-845-11	METAL CHIP	100K	5%	1/16W
R564	1-219-570-11	RES, CHIP	10M	5%	1/16W	R824	1-216-845-11	METAL CHIP	100K	5%	1/16W
R565	1-216-864-11	METAL CHIP	0	5%	1/16W	R826	1-216-864-11	METAL CHIP	0	5%	1/16W
R566	1-216-821-11	METAL CHIP	1K	5%	1/16W	R829	1-216-864-11	METAL CHIP	0	5%	1/16W
R567	1-216-821-11	METAL CHIP	1K	5%	1/16W	R830	1-216-833-91	RES, CHIP	10K	5%	1/16W
R568	1-216-821-11	METAL CHIP	1K	5%	1/16W	R831	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R569	1-216-821-11	METAL CHIP	1K	5%	1/16W	R832	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R570	1-216-841-11	METAL CHIP	47K	5%	1/16W	R833	1-216-833-91	RES, CHIP	10K	5%	1/16W
R571	1-216-841-11	METAL CHIP	47K	5%	1/16W	R834	1-216-833-91	RES, CHIP	10K	5%	1/16W
R572	1-216-845-11	METAL CHIP	100K	5%	1/16W	R835	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R573	1-216-821-11	METAL CHIP	1K	5%	1/16W	R836	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R574	1-216-797-11	METAL CHIP	10	5%	1/16W	R837	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R575	1-216-821-11	METAL CHIP	1K	5%	1/16W	R838	1-216-809-11	METAL CHIP	100	5%	1/16W
R576	1-216-797-11	METAL CHIP	10	5%	1/16W	R839	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R577	1-216-797-11	METAL CHIP	10	5%	1/16W	R840	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R578	1-216-821-11	METAL CHIP	1K	5%	1/16W	R841	1-216-809-11	METAL CHIP	100	5%	1/16W
R579	1-216-841-11	METAL CHIP	47K	5%	1/16W	R842	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R580	1-216-833-91	RES, CHIP	10K	5%	1/16W	R843	1-216-809-11	METAL CHIP	100	5%	1/16W
R581	1-216-841-11	METAL CHIP	47K	5%	1/16W	R844	1-216-833-91	RES, CHIP	10K	5%	1/16W
R582	1-216-841-11	METAL CHIP	47K	5%	1/16W	R845	1-216-809-11	METAL CHIP	100	5%	1/16W
R583	1-216-841-11	METAL CHIP	47K	5%	1/16W	R847	1-216-833-91	RES, CHIP	10K	5%	1/16W
R584	1-216-841-11	METAL CHIP	47K	5%	1/16W	R850	1-218-870-11	METAL CHIP	9.1K	0.5%	1/16W
R585	1-216-841-11	METAL CHIP	47K	5%	1/16W	R852	1-216-809-11	METAL CHIP	100	5%	1/16W
R586	1-216-837-11	METAL CHIP	22K	5%	1/16W	R853	1-216-833-91	RES, CHIP	10K	5%	1/16W
R587	1-216-837-11	METAL CHIP	22K	5%	1/16W	R854	1-216-833-91	RES, CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
R855	1-218-870-11	METAL CHIP	9.1K	0.5%	1/16W	R952	1-216-821-11	METAL CHIP	1K	5%	1/16W
R856	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R953	1-216-821-11	METAL CHIP	1K	5%	1/16W
R857	1-216-809-11	METAL CHIP	100	5%	1/16W	R954	1-216-821-11	METAL CHIP	1K	5%	1/16W
R858	1-218-707-11	RES, CHIP	4.3K	5%	1/16W	R955	1-216-821-11	METAL CHIP	1K	5%	1/16W
R859	1-216-809-11	METAL CHIP	100	5%	1/16W	R956	1-216-821-11	METAL CHIP	1K	5%	1/16W
R860	1-218-707-11	RES, CHIP	4.3K	5%	1/16W	R957	1-216-842-11	METAL CHIP	56K	5%	1/16W
R861	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R958	1-216-845-11	METAL CHIP	100K	5%	1/16W
R863	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R959	1-216-833-91	RES, CHIP	10K	5%	1/16W
R866	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R960	1-216-841-11	METAL CHIP	47K	5%	1/16W
R867	1-216-809-11	METAL CHIP	100	5%	1/16W	R962	1-216-821-11	METAL CHIP	1K	5%	1/16W
R868	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R964	1-216-838-11	METAL CHIP	27K	5%	1/16W
R869	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R965	1-216-833-91	RES, CHIP	10K	5%	1/16W
R870	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R966	1-216-833-91	RES, CHIP	10K	5%	1/16W
R871	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R967	1-216-833-91	RES, CHIP	10K	5%	1/16W
R872	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R968	1-216-841-11	METAL CHIP	47K	5%	1/16W
R873	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R969	1-216-841-11	METAL CHIP	47K	5%	1/16W
R875	1-218-839-11	METAL CHIP	470	0.5%	1/16W	R970	1-216-833-91	RES, CHIP	10K	5%	1/16W
R876	1-218-839-11	METAL CHIP	470	0.5%	1/16W	R971	1-216-813-11	METAL CHIP	220	5%	1/16W
R877	1-218-839-11	METAL CHIP	470	0.5%	1/16W	R972	1-216-841-11	METAL CHIP	47K	5%	1/16W
R878	1-218-839-11	METAL CHIP	470	0.5%	1/16W	R973	1-216-864-11	METAL CHIP	0	5%	1/16W
R879	1-216-864-11	METAL CHIP	0	5%	1/16W	R974	1-216-838-11	METAL CHIP	27K	5%	1/16W
R880	1-216-815-11	METAL CHIP	330	5%	1/16W	R975	1-216-841-11	METAL CHIP	47K	5%	1/16W
R881	1-216-815-11	METAL CHIP	330	5%	1/16W	R976	1-216-845-11	METAL CHIP	100K	5%	1/16W
R885	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R978	1-216-813-11	METAL CHIP	220	5%	1/16W
R886	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R980	1-216-841-11	METAL CHIP	47K	5%	1/16W
R887	1-216-833-91	RES, CHIP	10K	5%	1/16W	R981	1-216-821-11	METAL CHIP	1K	5%	1/16W
R888	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R982	1-216-833-91	RES, CHIP	10K	5%	1/16W
R889	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	R983	1-216-821-11	METAL CHIP	1K	5%	1/16W
R890	1-216-849-11	METAL CHIP	220K	5%	1/16W	R984	1-216-833-91	RES, CHIP	10K	5%	1/16W
R891	1-208-813-11	METAL CHIP	20K	0.5%	1/10W	R986	1-216-864-11	METAL CHIP	0	5%	1/16W
R893	1-216-833-91	RES, CHIP	10K	5%	1/16W	R987	1-216-864-11	METAL CHIP	0	5%	1/16W
R894	1-216-809-11	METAL CHIP	100	5%	1/16W	R988	1-216-864-11	METAL CHIP	0	5%	1/16W
R895	1-216-833-91	RES, CHIP	10K	5%	1/16W	R989	1-216-864-11	METAL CHIP	0	5%	1/16W
R896	1-216-809-11	METAL CHIP	100	5%	1/16W	R990	1-216-813-11	METAL CHIP	220	5%	1/16W
R897	1-208-813-11	METAL CHIP	20K	0.5%	1/10W	R991	1-216-813-11	METAL CHIP	220	5%	1/16W
R899	1-216-864-11	METAL CHIP	0	5%	1/16W	R992	1-216-864-11	METAL CHIP	0	5%	1/16W
R903	1-216-864-11	METAL CHIP	0	5%	1/16W	RR001	1-216-864-11	METAL CHIP	0	5%	1/16W
R904	1-216-838-11	METAL CHIP	27K	5%	1/16W	(DSR-20MD)					
R905	1-216-821-11	METAL CHIP	1K	5%	1/16W	RR002	1-216-864-11	METAL CHIP	0	5%	1/16W
R906	1-218-883-11	METAL CHIP	33K	0.5%	1/16W	(DSR-20MDP)					
R907	1-216-821-11	METAL CHIP	1K	5%	1/16W	< VARIABLE RESISTOR >					
R908	1-216-864-11	METAL CHIP	0	5%	1/16W	RV001	1-238-855-11	RES, ADJ, CERMET 4.7K			
R909	1-216-864-11	METAL CHIP	0	5%	1/16W	(A/D CONV. REF REG1)					
R913	1-216-821-11	METAL CHIP	1K	5%	1/16W	RV002	1-238-855-11	RES, ADJ, CERMET 4.7K			
R918	1-216-821-11	METAL CHIP	1K	5%	1/16W	(A/D CONV. REF REG2)					
R919	1-216-864-11	METAL CHIP	0	5%	1/16W	RV010	1-238-854-11	RES, ADJ, CERMET 2.2K			
R920	1-218-871-11	METAL CHIP	10K	0.5%	1/16W	(CR CLAMP REF REG)					
R921	1-218-875-11	METAL CHIP	15K	0.5%	1/16W	RV011	1-238-853-11	RES, ADJ, CERMET 1K (Y CLAMP REF REG)			
R923	1-216-178-00	RES, CHIP	150	5%	1/8W	RV012	1-238-854-11	RES, ADJ, CERMET 2.2K			
R924	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	(CB CLAMP REF REG)					
R926	1-216-857-11	METAL CHIP	1M	5%	1/16W	RV201	1-238-855-11	RES, ADJ, CERMET 4.7K			
R936	1-216-845-11	METAL CHIP	100K	5%	1/16W	(AFC PICTURE FRAME)					
R937	1-216-845-11	METAL CHIP	100K	5%	1/16W	< VIBRATOR >					
R938	1-216-847-11	METAL CHIP	150K	5%	1/16W	X421	1-760-655-21	VIBRATOR, CRYSTAL (20MHZ)			
R939	1-216-833-91	RES, CHIP	10K	5%	1/16W	X422	1-767-449-11	VIBRATOR, CRYSTAL (27MHZ)			
R941	1-216-864-11	METAL CHIP	0	5%	1/16W	X501	1-767-450-11	VIBRATOR, CERAMIC (20MHZ)			
R943	1-216-864-11	METAL CHIP	0	5%	1/16W	X502	1-760-458-21	VIBRATOR, CRYSTAL (32.768kHz)			
R944	1-216-833-91	RES, CHIP	10K	5%	1/16W	X701	1-767-399-11	VIBRATOR, CRYSTAL (24.576MHZ)			
R950	1-216-821-11	METAL CHIP	1K	5%	1/16W						
R951	1-216-821-11	METAL CHIP	1K	5%	1/16W						

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## MD-63

## MD-64

## MD-65

## POWER BLOCK (U-1)

Ref. No.	Part No.	Description	Remark
X702	1-760-497-21	VIBRATOR, LITHIUM NIOBATE (6MHz)	
X801	1-767-779-21	VIBRATOR, CRYSTAL (49.152MHz)	

MD-63 BOARD (Ref No. 6,000 Series)  
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## &lt; CAPACITOR &gt;

C101	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C102	1-163-031-11	CERAMIC CHIP	0.01uF		50V

## &lt; CONNECTOR &gt;

CN101	1-770-646-11	CONNECTOR, FFC/FPC 16P	
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## &lt; DIODE &gt;

D101	8-719-989-52	DIODE GL4600S	
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## &lt; IC &gt;

IC101	8-719-820-44	IC PHOTO COUPLER TLP907-0 (SONY2)	
IC102	8-719-820-44	IC PHOTO COUPLER TLP907-0 (SONY2)	
IC103	8-759-510-71	IC BA10358F-E2	
IC105	8-719-821-03	IC ELEMENT, HALL THS117-TE85L	

## &lt; JUMPER RESISTOR &gt;

JR101	1-216-296-91	SHORT	0
JR102	1-216-296-91	SHORT	0
JR103	1-216-296-91	SHORT	0
JR104	1-216-296-91	SHORT	0
JR105	1-216-296-91	SHORT	0

## &lt; TRANSISTOR &gt;

Q102	8-729-012-46	PHOTO TRANSISTOR PT4600FS	
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## &lt; RESISTOR &gt;

R101	1-216-031-00	METAL CHIP	180	5%	1/10W
R102	1-216-081-00	METAL CHIP	22K	5%	1/10W
R103	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R107	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R108	1-216-047-91	RES, CHIP	820	5%	1/10W
R109	1-216-081-00	METAL CHIP	22K	5%	1/10W

## &lt; VARIABLE RESISTOR &gt;

RV101	1-238-858-11	RES, ADJ, CERMET 47K	
RV102	1-238-862-11	RES, ADJ, CERMET 1M	

## &lt; SWITCH &gt;

S101	1-572-719-11	SWITCH, PUSH (1 KEY)	
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MD-64 BOARD (Ref No. 7,000 Series)  
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## &lt; CAPACITOR &gt;

C001	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C002	1-163-031-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description	Remark
		< CONNECTOR >	

CN002	1-770-692-11	CONNECTOR, FFC/FPC 9P	
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## &lt; IC &gt;

IC003	8-719-820-44	IC PHOTO COUPLER TLP907-0 (SONY2)	
IC004	8-719-820-44	IC PHOTO COUPLER TLP907-0 (SONY2)	
IC005	8-759-510-71	IC BA10358F-E2	
IC006	8-719-821-03	IC ELEMENT, HALL THS117-TE85L	

## &lt; JUMPER RESISTOR &gt;

JR001	1-216-296-91	SHORT	0
JR002	1-216-296-91	SHORT	0

## &lt; TRANSISTOR &gt;

Q001	8-729-012-46	PHOTO TRANSISTOR PT4600FS	
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## &lt; RESISTOR &gt;

R002	1-216-031-00	METAL CHIP	180	5%	1/10W
R003	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R004	1-216-081-00	METAL CHIP	22K	5%	1/10W
R005	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R007	1-216-081-00	METAL CHIP	22K	5%	1/10W
R008	1-216-047-91	RES, CHIP	820	5%	1/10W

## &lt; VARIABLE RESISTOR &gt;

RV001	1-238-858-11	RES, ADJ, CERMET 47K	
RV002	1-238-862-11	RES, ADJ, CERMET 1M	

## &lt; SWITCH &gt;

S002	1-762-558-11	SWITCH, PUSH (C DOWN)	
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MD-65 BOARD (Ref No. 5,000 Series)  
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## &lt; CONNECTOR &gt;

CN201	1-766-830-21	CONNECTOR, FFC/FPC (ZIF) 11P	
CN202	1-774-771-11	CONNECTOR, FFC/FPC 14P	
CN203	1-564-001-11	PIN, CONNECTOR 2P	
CN204	1-750-620-11	CONNECTOR (MM8 MD)	

## &lt; JUMPER RESISTOR &gt;

JR201	1-216-296-91	SHORT	0
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△	1-468-441-11	POWER BLOCK (U-1) (DSR-20MD)	
△	1-468-442-11	POWER BLOCK (U-1) (DSR-20MDP)	

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(Ref No. 10,000 Series)

## &lt; CAPACITOR &gt;

△C1	1-104-705-11	FILM	0.1uF	20%	250V
△C1	1-104-706-11	FILM	0.22uF	20%	250V
△C2	1-104-705-11	FILM	0.1uF	20%	250V
△C3	1-115-383-11	CERAMIC	0.001uF	10%	125V
△C4	1-115-383-11	CERAMIC	0.001uF	10%	125V

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

# POWER BLOCK (U-1)

Ref. No.	Part No.	Description	Remark
△C5	1-115-383-11	CERAMIC	0.001uF 10% 125V
△C6	1-104-705-11	FILM	0.1uF 20% 250V
C7	1-115-383-11	CERAMIC	0.001uF 10% 125V
C8	1-115-383-11	CERAMIC	0.001uF 10% 125V
△C9	9-880-364-01	ELECT	470uF 200V (DSR-20MD)
△C9	1-117-188-11	ELECT	150uF 20% 400V (DSR-20MDP)
C10	9-880-365-01	FILM	0.01uF 630V
C11	9-880-366-01	CERAMIC	680PF (DSR-20MD)
C11	9-880-424-01	CERAMIC	330PF (DSR-20MDP)
C12	9-880-366-01	CERAMIC	680PF (DSR-20MD)
C12	9-880-424-01	CERAMIC	330PF (DSR-20MDP)
C13	1-107-929-11	ELECT	10uF 20% 100V
C14	1-107-929-11	ELECT	10uF 20% 100V
C15	1-126-387-11	ELECT	2.2uF 20% 100V
C16	9-880-367-01	FILM	0.1uF
C17	9-880-368-01	FILM	470PF
C18	9-880-369-01	FILM	0.15uF
C19	9-880-370-01	FILM	0.033uF
C20	1-107-929-11	ELECT	10uF 20% 100V
C21	9-880-371-01	CERAMIC	0.001uF
C22	9-880-371-01	CERAMIC	0.001uF
C25	9-880-371-01	CERAMIC	0.001uF (DSR-20MD)
C25	9-880-426-01	CERAMIC	0.001uF (DSR-20MDP)
C26	9-880-371-01	CERAMIC	0.001uF (DSR-20MD)
C26	9-880-426-01	CERAMIC	0.001uF (DSR-20MDP)
C27	1-111-066-11	ELECT	820uF 20% 25V
C28	1-111-066-11	ELECT	820uF 20% 25V
C29	9-880-367-01	FILM	0.1uF
C31	9-880-367-01	FILM	0.1uF
C32	9-880-367-01	FILM	0.1uF
< CONNECTOR >			
* CN1	1-580-230-31	PIN, CONNECTOR (FOR BOARD) 2P	
* CN3	9-880-386-01	BOARD IN HARNESS 4P	
< FUSE >			
△F1	9-880-385-01	FUSE (3.15A/125V) (DSR-20MD)	
△F1	9-882-875-01	FUSE (T1.6AL/250V) (DSR-20MDP)	
△F2	9-880-385-01	FUSE (3.15A/125V) (DSR-20MD)	
△F2	9-882-875-01	FUSE (T1.6AL/250V) (DSR-20MDP)	
< COIL >			
△L1	9-880-379-01	INDUCTOR 6mH (DSR-20MD)	
△L1	9-880-431-01	INDUCTOR 15mH (DSR-20MDP)	
△L2	9-880-380-01	INDUCTOR 5.6mH (DSR-20MD)	
△L2	9-880-432-01	INDUCTOR 22mH (DSR-20MDP)	
L3	9-880-381-01	INDUCTOR	
L4	9-880-382-01	INDUCTOR	
L5	9-880-382-01	INDUCTOR	
L6	9-880-383-01	INDUCTOR	
< DIODE >			
△D1	8-719-500-58	DIODE D3SBA60	
D4	8-719-979-63	DIODE UF4005 (DSR-20MD)	
D4	8-719-053-19	DIODE UF4007G23 (DSR-20MDP)	

Ref. No.	Part No.	Description	Remark
D5	8-719-110-72	DIODE RD30ESB2	
D6	8-719-110-72	DIODE RD30ESB2	
D8	8-719-053-20	DIODE UF4003P	
D9	8-719-109-85	DIODE RD5.1ESB2	
D10	8-719-510-37	DIODE D5LC20U	
D11	8-719-109-97	DIODE RD6.8ESB2	
D12	8-719-110-41	DIODE RD15ESB2	
< TRANSISTOR >			
Q1	8-729-037-96	TRANSISTOR 2SK2366 (DSR-20MD)	
Q1	9-880-423-01	TRANSISTOR 2SK2483 (DSR-20MDP)	
Q3	8-729-281-53	TRANSISTOR 2SC1815-GR	
< RESISTOR >			
△R1	9-880-373-01	METAL OXIDE 220K	1W (DSR-20MD)
△R1	9-880-427-01	METAL OXIDE 330K	1W (DSR-20MDP)
R2	9-880-374-01	METAL OXIDE 82K	2W (DSR-20MD)
R2	9-880-428-01	METAL OXIDE 270K	2W (DSR-20MDP)
R3	1-212-865-00	FUSEBLE 22	5% 1/4W F
R4	1-247-879-11	CARBON 100K	5% 1/4W
R5	1-215-884-11	METAL OXIDE 47	5% 2W
R6	1-215-880-11	METAL OXIDE 10	5% 2W
R7	9-880-375-01	METAL OXIDE 18K	2W (DSR-20MD)
R7	9-880-650-01	METAL OXIDE 150K	2W (DSR-20MDP)
R8	9-880-376-01	METAL OXIDE 0.22	5W (DSR-20MD)
R8	9-880-429-01	METAL OXIDE 0.47	5W (DSR-20MDP)
R9	1-216-377-11	METAL OXIDE 4.7	5% 2W
R10	1-215-462-00	METAL 5.1K	1% 1/4W
R11	1-249-411-11	CARBON 330	5% 1/4W (DSR-20MD)
R11	1-249-417-11	CARBON 1K	5% 1/4W (DSR-20MDP)
R12	1-215-383-00	METAL 27	1% 1/4W
R13	1-215-385-00	METAL 33	1% 1/4W
R14	1-249-430-11	CARBON 12K	5% 1/4W
R16	1-215-884-11	METAL OXIDE 47	5% 2W
R18	1-247-847-11	CARBON 4.7K	5% 1/4W
R19	1-247-847-11	CARBON 4.7K	5% 1/4W
R20	1-247-839-11	CARBON 2.2K	5% 1/4W
R21	1-249-417-11	CARBON 1K	5% 1/4W
R22	1-247-843-11	CARBON 3.3K	5% 1/4W
R23	1-249-399-11	CARBON 33	5% 1/4W
R24	1-215-425-00	METAL 1.5K	1% 1/4W
R25	1-215-425-00	METAL 1.5K	1% 1/4W
R26	1-215-433-00	METAL 3.3K	1% 1/4W
R27	1-249-417-11	CARBON 1K	5% 1/4W
R28	9-880-375-01	METAL OXIDE 18K	2W (DSR-20MD)
R28	9-880-650-01	METAL OXIDE 150K	2W (DSR-20MD)
R29	9-880-651-01	METAL OXIDE 680	2W
< VARIABLE RESISTOR >			
RV1	9-880-377-01	RES, VAAR, CARBON 3K	

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# POWER BLOCK (U-1)

# POWER BLOCK (U-2)

Ref. No.	Part No.	Description	Remark
< TRANSFORMER >			
△T1	9-885-000-10	TRANSFORMER, POWER (DSR-20MD)	
△T1	9-885-000-13	TRANSFORMER, POWER (DSR-20MDP)	
< THERMISTOR >			
TH1	9-880-384-01	THERMISTOR 8	
< IC >			
Z1	9-885-000-09	IC FA5316P	
△Z2	8-749-924-80	PHOTO COUPLER PS2561L1-1-V	
△Z3	8-749-924-80	PHOTO COUPLER PS2561L1-1-V	
*****			
△	1-468-441-11	POWER BLOCK (U-2) (DSR-20MD)	
△	1-468-442-11	POWER BLOCK (U-2) (DSR-20MDP)	
(Ref No. 20,000 Series)			
< CAPACITOR >			
C1	1-115-781-11	ELECT 220uF 20% 25V	
C2	1-115-781-11	ELECT 220uF 20% 25V	
C3	9-880-399-01	FILM 0.047uF	
C4	9-880-399-01	FILM 0.047uF	
C5	9-880-400-01	ELECT 330uF 25V	
C6	9-880-401-01	FILM 0.47uF	
C7	1-115-787-11	ELECT 820uF 20% 25V	
C8	1-115-787-11	ELECT 820uF 20% 25V	
C10	9-880-403-01	FILM 0.1uF 50V	
C11	1-115-787-11	ELECT 820uF 20% 25V	
C12	9-880-404-01	ELECT 470uF 25V	
C13	9-880-405-01	CERAMIC 0.001uF	
C14	1-115-737-11	ELECT 0.001uF 20% 10V	
C15	1-115-737-11	ELECT 0.001uF 20% 10V	
C16	9-880-406-01	ELECT 680uF 10V	
C17	9-880-402-01	FILM 0.1uF 50V	
C18	1-124-942-11	ELECT 180uF 20% 10V	
C19	9-880-399-01	FILM 0.047uF	
C20	9-880-399-01	FILM 0.047uF	
C21	9-880-399-01	FILM 0.047uF	
C22	9-880-402-01	FILM 0.1uF 50V	
C23	9-880-399-01	FILM 0.047uF	
C24	1-115-730-11	ELECT 180uF 20% 10V	
C25	9-880-404-01	ELECT 470uF 25V	
C26	9-880-399-01	FILM 0.047uF	
C27	9-880-407-01	CERAMIC 0.0022uF	
C28	9-880-406-01	ELECT 680uF 10V	
C29	9-880-406-01	ELECT 680uF 10V	
C30	9-880-402-01	FILM 0.01uF	
C31	9-880-406-01	ELECT 680uF 10V	
C32	1-115-785-11	ELECT 470uF 25V	
C33	1-124-534-11	ELECT 680uF 20% 16V	
C34	9-880-402-01	FILM 0.01uF	
C35	1-115-754-11	ELECT 120uF 20% 16V	
C36	9-880-403-01	FILM 0.1uF 50V	
C37	1-115-730-11	ELECT 180uF 20% 10V	
C38	9-880-399-01	FILM 0.047uF	
C39	9-880-402-01	FILM 0.01uF	
C40	9-880-402-01	FILM 0.01uF	

Ref. No.	Part No.	Description	Remark
C41	9-880-399-01	FILM 0.047uF	
C42	9-880-399-01	FILM 0.047uF	
C44	1-117-154-11	ELECT 33uF 20% 16V	
C45	9-880-399-01	FILM 0.047uF	
C46	9-880-652-01	ELECT 100uF 20% 16V	
C47	1-117-154-11	ELECT 33uF 20% 16V	
C48	9-880-652-01	ELECT 100uF 20% 16V	
C49	9-880-399-01	FILM 0.047uF	
C50	9-880-399-01	FILM 0.047uF	
C51	9-880-400-01	ELECT 330uF 25V	
C54	9-880-406-01	ELECT 680uF 10V	
C55	9-880-407-01	CERAMIC 0.0022uF	
C56	1-115-730-11	ELECT 180uF 20% 10V	
C57	9-880-403-01	FILM 0.1uF 50V	
C58	9-880-399-01	FILM 0.047uF	
C59	9-880-407-01	CERAMIC 0.0022uF	
C60	1-115-566-11	CERAMIC 4.7uF 10% 10V	
C61	1-115-566-11	CERAMIC 4.7uF 10% 10V	
C62	1-115-566-11	CERAMIC 4.7uF 10% 10V	
C63	1-115-566-11	CERAMIC 4.7uF 10% 10V	
C64	1-107-682-11	CERAMIC 1uF 10% 16V	
C65	1-115-566-11	CERAMIC 4.7uF 10% 10V	
C66	1-115-566-11	CERAMIC 4.7uF 10% 10V	
C67	1-115-566-11	CERAMIC 4.7uF 10% 10V	
C68	1-115-566-11	CERAMIC 4.7uF 10% 10V	
C69	1-115-566-11	CERAMIC 4.7uF 10% 10V	
C70	1-115-566-11	CERAMIC 4.7uF 10% 10V	
C71	1-115-566-11	CERAMIC 4.7uF 10% 10V	
C72	1-107-682-11	CERAMIC 1uF 10% 16V	
C73	1-107-682-11	CERAMIC 1uF 10% 16V	
< CONNECTOR >			
* CN1	9-880-417-01	PIN, CONNECTOR 4P	
* CN2	1-506-485-11	PIN, CONNECTOR 6P	
* CN10	1-506-487-11	PIN, CONNECTOR 8P	
* CN11	1-506-488-11	PIN, CONNECTOR 9P	
* CN12	1-506-487-11	PIN, CONNECTOR 8P	
* CN13	1-506-481-11	CONNECTOR 2P	
< FUSE >			
△F2	9-880-416-01	FUSE (T5A/250V)	
< COIL >			
L1	9-880-408-01	INDUCTOR 0.5mH	
L2	9-880-409-01	INDUCTOR 1mH	
L3	9-880-410-01	INDUCTOR 150uH	
L4	1-459-407-00	COIL, FERRITE CHOKE 68uH	
L5	9-880-411-01	INDUCTOR 150uH	
L6	9-880-412-01	INDUCTOR 15uH	
L8	9-880-413-01	INDUCTOR 330uH	
L9	9-880-412-01	INDUCTOR 15uH	
L11	9-880-414-01	INDUCTOR 150uH	
L12	9-880-415-01	INDUCTOR	
L13	9-880-412-01	INDUCTOR 15uH	
L15	9-880-412-01	INDUCTOR 15uH	
L16	9-880-412-01	INDUCTOR 15uH	
L17	9-880-412-01	INDUCTOR 15uH	

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Ref. No.	Part No.	Description	Remark
< DIODE >			
D1	8-719-500-70	DIODE D5S4M	
D2	8-719-109-89	DIODE RD5.6ESB2	
D3	8-719-500-70	DIODE D5S4M	
D4	8-719-043-76	DIODE AK04V0	
D5	8-719-018-83	DIODE D2S4M	
D6	8-719-018-83	DIODE D2S4M	
D7	8-719-107-94	DIODE 1SS202-1	
D8	8-719-107-94	DIODE 1SS202-1	
< TRANSISTOR >			
Q1	8-729-201-53	TRANSISTOR 2SA1015-GR	
Q2	8-729-201-53	TRANSISTOR 2SA1015-GR	
Q3	8-729-281-53	TRANSISTOR 2SC1815-GR	
Q4	8-729-203-76	TRANSISTOR 2SC3328-Y	
< RESISTOR >			
R1	1-247-839-11	CARBON 2.2K 5% 1/4W	
R2	1-215-454-00	METAL 24K 1% 1/4W	
R3	1-215-427-00	METAL 1.8K 1% 1/4W	
R4	1-215-429-00	METAL 2.2K 1% 1/4W	
R5	1-216-431-11	METAL OXIDE 560 5% 1W	
R6	1-215-857-11	METAL OXIDE 10 5% 1W	
R7	1-215-443-00	METAL 8.2K 1% 1/4W	
R8	1-215-416-00	METAL 620 1% 1/4W	
R9	1-215-429-00	METAL 2.2K 1% 1/4W	
R10	1-216-448-11	METAL OXIDE 39 5% 2W	
R11	1-249-417-11	CARBON 1K 5% 1/4W	
R12	1-249-424-11	CARBON 3.9K 5% 1/4W	
R14	1-249-417-11	CARBON 1K 5% 1/4W	
R15	1-247-847-11	CARBON 4.7K 5% 1/4W	
R16	1-249-402-11	CARBON 56 5% 1/4W	
R17	1-249-402-11	CARBON 56 5% 1/4W	
R18	1-249-402-11	CARBON 56 5% 1/4W	
R19	1-247-847-11	CARBON 4.7K 5% 1/4W	
R21	1-249-417-11	CARBON 1K 5% 1/4W	
R22	1-215-857-11	METAL OXIDE 10 5% 1W	
R23	1-215-387-00	METAL 39 1% 1/4W	
R24	1-215-408-00	METAL 300 1% 1/4W	
R25	1-215-405-00	METAL 220 1% 1/4W	
R26	1-215-431-00	METAL 2.7K 1% 1/4W	
R27	1-215-449-00	METAL 15K 1% 1/4W	
R28	1-215-430-00	METAL 2.4K 1% 1/4W	
R29	1-247-841-11	CARBON 2.7K 5% 1/4W	
R30	1-249-417-11	CARBON 1K 5% 1/4W	
R31	1-215-447-00	METAL 12K 1% 1/4W	
R32	1-215-423-00	METAL 1.2K 1% 1/4W	
R33	1-215-423-00	METAL 1.2K 1% 1/4W	
R43	1-215-857-11	METAL OXIDE 10 5% 1W	
R45	1-215-443-00	METAL 8.2K 1% 1/4W	
R46	1-215-413-00	METAL 470 1% 1/4W	
R47	1-215-429-00	METAL 2.2K 1% 1/4W	
R48	1-247-839-11	CARBON 2.2K 5% 1/4W	
R49	1-249-402-11	CARBON 56 5% 1/4W	
R50	1-247-855-11	CARBON 10K 5% 1/4W	
R53	1-215-857-11	METAL OXIDE 10 5% 1W	
< IC >			
Z1	8-759-164-80	IC LM2577-ADJ	
Z2	8-759-520-49	IC PQ30RV21	

Ref. No.	Part No.	Description	Remark
Z3	8-759-293-98	IC LM2576T-ADJLB03	
Z4	9-880-397-01	IC uPC29L03J	
Z5	8-759-069-28	IC PQ05RF11	
Z6	9-880-398-01	IC TD62305AP	
Z7	8-759-490-61	IC LM2575T-ADJLB03	
Z8	8-759-490-61	IC LM2575T-ADJLB03	
Z10	8-759-089-53	IC uPC79M05HF	
Z11	8-759-098-24	IC PQ30RV11	
* A-7073-470-A RE-32 BOARD, COMPLETE			
*****			
(Ref.No. 7,000 Series)			
< CAPACITOR >			
C101	1-163-243-11	CERAMIC CHIP 47PF 5% 50V	
C102	1-163-243-11	CERAMIC CHIP 47PF 5% 50V	
C103	1-163-243-11	CERAMIC CHIP 47PF 5% 50V	
C104	1-163-243-11	CERAMIC CHIP 47PF 5% 50V	
C105	1-163-243-11	CERAMIC CHIP 47PF 5% 50V	
C106	1-163-243-11	CERAMIC CHIP 47PF 5% 50V	
C108	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C115	1-163-038-91	CERAMIC CHIP 0.1uF 25V	
< CONNECTOR >			
CN101	1-764-129-11	CONNECTOR, FPC 15P	
CN102	1-764-129-11	CONNECTOR, FPC 15P	
< DIODE >			
D101	8-719-421-59	DIODE MA3075WA- (TX)	
D102	8-719-421-59	DIODE MA3075WA- (TX)	
D103	8-719-421-59	DIODE MA3075WA- (TX)	
D104	8-719-421-59	DIODE MA3075WA- (TX)	
D105	8-719-421-59	DIODE MA3075WA- (TX)	
D106	8-719-421-59	DIODE MA3075WA- (TX)	
D107	8-719-421-59	DIODE MA3075WA- (TX)	
D108	8-719-421-59	DIODE MA3075WA- (TX)	
D109	8-719-421-59	DIODE MA3075WA- (TX)	
D110	8-719-421-59	DIODE MA3075WA- (TX)	
D111	8-719-421-59	DIODE MA3075WA- (TX)	
D112	8-719-421-59	DIODE MA3075WA- (TX)	
D113	8-719-421-59	DIODE MA3075WA- (TX)	
D114	8-719-421-59	DIODE MA3075WA- (TX)	
D115	8-719-421-59	DIODE MA3075WA- (TX)	
< FERRITE BEAD >			
FB101	1-500-241-22	FERRITE 0uH	
FB102	1-500-241-22	FERRITE 0uH	
FB103	1-500-241-22	FERRITE 0uH	
FB104	1-500-241-22	FERRITE 0uH	
FB105	1-500-241-22	FERRITE 0uH	
FB106	1-500-241-22	FERRITE 0uH	
< JACK >			
J101	1-694-410-11	TERMINAL BOARD	
(INPUT/OUTPUT/MONITOR)			
< JUMPER RESISTOR >			
JR101	1-216-296-91	SHORT 0	
JR102	1-216-296-91	SHORT 0	



Ref. No.	Part No.	Description	Remark
JR103	1-216-296-91	SHORT	0
JR104	1-216-296-91	SHORT	0
JR105	1-216-296-91	SHORT	0
JR106	1-216-296-91	SHORT	0
JR107	1-216-296-91	SHORT	0
JR108	1-216-296-91	SHORT	0
JR109	1-216-296-91	SHORT	0
JR110	1-216-296-91	SHORT	0
JR111	1-216-296-91	SHORT	0
JR112	1-216-296-91	SHORT	0
JR113	1-216-296-91	SHORT	0
JR114	1-216-296-91	SHORT	0
JR115	1-216-296-91	SHORT	0
JR116	1-216-296-91	SHORT	0
JR117	1-216-296-91	SHORT	0
JR118	1-216-296-91	SHORT	0
JR119	1-216-296-91	SHORT	0
JR120	1-216-296-91	SHORT	0
JR121	1-216-296-91	SHORT	0
JR122	1-216-296-91	SHORT	0
JR123	1-216-296-91	SHORT	0
< RESISTOR >			
R105	1-216-295-91	SHORT	0
R106	1-216-022-00	METAL CHIP	75 5% 1/10W
R107	1-216-022-00	METAL CHIP	75 5% 1/10W
R108	1-216-022-00	METAL CHIP	75 5% 1/10W
R109	1-216-295-91	SHORT	0
R110	1-216-295-91	SHORT	0
R111	1-216-295-91	SHORT	0
R112	1-216-295-91	SHORT	0
R113	1-216-295-91	SHORT	0
R114	1-216-295-91	SHORT	0
R115	1-216-295-91	SHORT	0
< SWITCH >			
S101	1-570-974-11	SWITCH, SLIDE (SYNC)	
*****			
(Ref.No. 3,000 Series)			
1-776-149-11 CABLE, FLEXIBLE FLAT 30P			
1-783-376-11 CABLE, FLEXIBLE FLAT (FFC-245)			
< CAPACITOR >			
C146	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C148	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C701	1-164-174-11	CERAMIC CHIP	0.0082uF 10% 25V
C702	1-162-967-11	CERAMIC CHIP	0.0033uF 10% 50V
C703	1-164-174-11	CERAMIC CHIP	0.0082uF 10% 25V
C704	1-162-967-11	CERAMIC CHIP	0.0033uF 10% 50V
C705	1-164-173-11	CERAMIC CHIP	0.0039uF 10% 50V
C706	1-164-173-11	CERAMIC CHIP	0.0039uF 10% 50V
C761	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C762	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C763	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C770	1-135-201-11	TANTALUM CHIP	10uF 20% 4V
C771	1-162-974-11	CERAMIC CHIP	0.01uF 50V

Ref. No.	Part No.	Description	Remark
C772	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C773	1-113-619-11	CERAMIC CHIP	0.47uF 10V
C774	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C775	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C776	1-162-923-11	CERAMIC CHIP	47PF 5% 50V
C777	1-162-923-11	CERAMIC CHIP	47PF 5% 50V
C778	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C779	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C780	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C781	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C782	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C783	1-135-201-11	TANTALUM CHIP	10uF 20% 4V
C784	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C786	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C788	1-104-851-11	TANTALUM CHIP	10uF 20% 10V
C789	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C791	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C792	1-119-750-11	TANTALUM CHIP	22uF 20% 6.3V
C793	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V
C794	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V
C795	1-128-004-11	ELECT CHIP	10uF 20% 16V
C796	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C797	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V
C798	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C799	1-164-217-11	CERAMIC CHIP	150PF 5% 50V
C803	1-164-217-11	CERAMIC CHIP	150PF 5% 50V
C811	1-113-619-11	CERAMIC CHIP	0.47uF 10V
C813	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C814	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C815	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C816	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C817	1-104-851-11	TANTALUM CHIP	10uF 20% 10V
C818	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C819	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C821	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C822	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C823	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C824	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C825	1-164-315-11	CERAMIC CHIP	470PF 5% 50V
C826	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C827	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C828	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C829	1-135-201-11	TANTALUM CHIP	10uF 20% 4V
C830	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C831	1-135-259-11	TANTALUM CHIP	10uF 20% 6.3V
C832	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C833	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C834	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C835	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C836	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C837	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C838	1-162-913-11	CERAMIC CHIP	8PF 0.5PF 50V
C839	1-162-913-11	CERAMIC CHIP	8PF 0.5PF 50V
C841	1-162-923-11	CERAMIC CHIP	47PF 5% 50V
C842	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C843	1-164-677-11	CERAMIC CHIP	0.033uF 10% 16V
C844	1-164-677-11	CERAMIC CHIP	0.033uF 10% 16V
C845	1-164-357-11	CERAMIC CHIP	1000PF 5% 50V
C847	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C848	1-104-851-11	TANTALUM CHIP	10uF 20% 10V

Ref. No.	Part No.	Description	Remark
C850	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C853	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C854	1-104-851-11	TANTALUM CHIP 10uF 20%	10V
C855	1-104-851-11	TANTALUM CHIP 10uF 20%	10V
C857	1-162-927-11	CERAMIC CHIP 100PF 5%	50V
C859	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C861	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C862	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C874	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C875	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V

< CONNECTOR >

CN101	1-750-345-11	CONNECTOR, FFC/EPC (ZIF) 30P
CN102	1-750-345-11	CONNECTOR, FFC/EPC (ZIF) 30P
CN103	1-750-345-11	CONNECTOR, FFC/EPC (ZIF) 30P
CN771	1-770-305-11	CONNECTOR, FFC/FPC 10P
CN775	1-750-303-41	CONNECTOR, BOARD TO BOARD 20P

< DIODE >

D771	8-719-073-01	DIODE MA111-TX
D772	8-719-073-01	DIODE MA111-TX
D773	8-719-055-86	DIODE KV1470TL1-3
D774	8-719-052-27	DIODE 1SS351-TB
D775	8-719-052-27	DIODE 1SS351-TB

D791	8-719-073-01	DIODE MA111-TX
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< FILTER >

FL770	1-411-951-21	DELAY LINE, LC (23NS)
FL771	1-233-734-21	FILTER, LOW PASS

< IC >

IC770	8-759-445-93	IC AK6440AM-E2
IC771	8-759-426-25	IC MB88346LPFV-G-BND-ER
IC772	8-752-371-18	IC CXD2302Q-T4
IC773	8-752-070-12	IC CXA1762Q-T4
IC774	8-752-386-38	IC CXD3105R-T6

IC775	8-752-074-59	IC CXA2023R-T4
IC777	8-752-073-50	IC CXA2018Q-T4
IC791	8-759-426-83	IC TK11228BMCL

< COIL >

L105	1-414-398-11	INDUCTOR 10uH
L770	1-414-398-11	INDUCTOR 10uH
L773	1-414-398-11	INDUCTOR 10uH
L774	1-414-398-11	INDUCTOR 10uH
L776	1-414-398-11	INDUCTOR 10uH
L779	1-410-737-31	INDUCTOR CHIP 0.47uH
L781	1-412-963-11	INDUCTOR 100uH
L782	1-412-963-11	INDUCTOR 100uH
L783	1-414-398-11	INDUCTOR 10uH
L784	1-414-398-11	INDUCTOR 10uH
L789	1-414-398-11	INDUCTOR 10uH

< TRANSISTOR >

Q105	8-729-037-52	TRANSISTOR 2SD2216J-QR (TX).SO
Q109	8-729-037-52	TRANSISTOR 2SD2216J-QR (TX).SO
Q701	8-729-013-04	TRANSISTOR 2SC4851-TL
Q702	8-729-013-04	TRANSISTOR 2SC4851-TL
Q772	8-729-037-72	TRANSISTOR UN9211J- (TX).SO

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
Q773	8-729-141-48	TRANSISTOR	2SB624-T1BV4
Q774	8-729-141-48	TRANSISTOR	2SB624-T1BV4
Q775	8-729-037-72	TRANSISTOR	UN9211J- (TX).SO
Q776	8-729-037-52	TRANSISTOR	2SD2216J-QR (TX).SO
Q777	8-729-037-52	TRANSISTOR	2SD2216J-QR (TX).SO
Q778	8-729-037-52	TRANSISTOR	2SD2216J-QR (TX).SO
Q779	8-729-037-52	TRANSISTOR	2SD2216J-QR (TX).SO
Q784	8-729-037-53	TRANSISTOR	2SB1462J-QR (TX).SO

< RESISTOR >

R117	1-216-807-11	METAL CHIP 68 5%	1/16W
R118	1-216-833-91	RES, CHIP 10K 5%	1/16W
R120	1-216-864-11	METAL CHIP 0 5%	1/16W
R121	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R122	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R123	1-216-864-11	METAL CHIP 0 5%	1/16W (DSR-20MD)
R124	1-216-864-11	METAL CHIP 0 5%	1/16W (DSR-20MDP)
R137	1-216-807-11	METAL CHIP 68 5%	1/16W
R138	1-216-833-91	RES, CHIP 10K 5%	1/16W
R143	1-216-833-91	RES, CHIP 10K 5%	1/16W
R144	1-216-831-11	METAL CHIP 6.8K 5%	1/16W
R147	1-216-864-11	METAL CHIP 0 5%	1/16W
R206	1-216-821-11	METAL CHIP 1K 5%	1/16W
R308	1-216-821-11	METAL CHIP 1K 5%	1/16W
R309	1-216-821-11	METAL CHIP 1K 5%	1/16W
R310	1-216-821-11	METAL CHIP 1K 5%	1/16W
R311	1-216-821-11	METAL CHIP 1K 5%	1/16W
R312	1-216-821-11	METAL CHIP 1K 5%	1/16W
R313	1-216-821-11	METAL CHIP 1K 5%	1/16W
R314	1-216-821-11	METAL CHIP 1K 5%	1/16W
R315	1-216-864-11	METAL CHIP 0 5%	1/16W
R316	1-216-833-91	RES, CHIP 10K 5%	1/16W
R701	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R702	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R703	1-216-809-11	METAL CHIP 100 5%	1/16W
R704	1-216-810-11	METAL CHIP 120 5%	1/16W
R705	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R706	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R707	1-216-809-11	METAL CHIP 100 5%	1/16W
R708	1-216-810-11	METAL CHIP 120 5%	1/16W
R770	1-216-845-11	METAL CHIP 100K 5%	1/16W
R772	1-216-296-91	SHORT 0	
R774	1-216-841-11	METAL CHIP 47K 5%	1/16W
R776	1-216-818-11	METAL CHIP 560 5%	1/16W
R779	1-216-847-11	METAL CHIP 150K 5%	1/16W
R780	1-216-837-11	METAL CHIP 22K 5%	1/16W
R782	1-216-833-91	RES, CHIP 10K 5%	1/16W
R783	1-216-833-91	RES, CHIP 10K 5%	1/16W
R786	1-216-817-11	METAL CHIP 470 5%	1/16W
R787	1-202-924-11	RES, CHIP 240 5%	1/16W
R788	1-202-924-11	RES, CHIP 240 5%	1/16W
R789	1-216-824-11	METAL CHIP 1.8K 5%	1/16W
R790	1-216-841-11	METAL CHIP 47K 5%	1/16W
R791	1-216-815-11	METAL CHIP 330 5%	1/16W
R792	1-216-814-11	METAL CHIP 270 5%	1/16W
R793	1-216-827-11	METAL CHIP 3.3K 5%	1/16W
R794	1-216-816-11	METAL CHIP 390 5%	1/16W
R796	1-216-809-11	METAL CHIP 100 5%	1/16W
R797	1-216-827-11	METAL CHIP 3.3K 5%	1/16W

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RS-78

VA-102

Ref. No.	Part No.	Description	Remark
R798	1-216-815-11	METAL CHIP 330 5%	1/16W
R799	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R800	1-216-833-91	RES, CHIP 10K 5%	1/16W
R801	1-216-833-91	RES, CHIP 10K 5%	1/16W
R802	1-216-841-11	METAL CHIP 47K 5%	1/16W
R804	1-216-839-11	METAL CHIP 33K 5%	1/16W
R806	1-216-821-11	METAL CHIP 1K 5%	1/16W
R808	1-216-821-11	METAL CHIP 1K 5%	1/16W
R810	1-216-837-11	METAL CHIP 22K 5%	1/16W
R812	1-216-837-11	METAL CHIP 22K 5%	1/16W
R814	1-216-853-11	METAL CHIP 470K 5%	1/16W
R815	1-216-853-11	METAL CHIP 470K 5%	1/16W
R818	1-216-837-11	METAL CHIP 22K 5%	1/16W
R819	1-216-839-11	METAL CHIP 33K 5%	1/16W
R820	1-216-803-11	METAL CHIP 33 5%	1/16W
R822	1-216-834-11	METAL CHIP 12K 5%	1/16W
R824	1-216-821-11	METAL CHIP 1K 5%	1/16W
R825	1-216-841-11	METAL CHIP 47K 5%	1/16W
R826	1-216-839-11	METAL CHIP 33K 5%	1/16W
R827	1-216-821-11	METAL CHIP 1K 5%	1/16W
R830	1-216-831-11	METAL CHIP 6.8K 5%	1/16W
R832	1-216-807-11	METAL CHIP 68 5%	1/16W
R843	1-216-822-11	METAL CHIP 1.2K 5%	1/16W
R844	1-216-837-11	METAL CHIP 22K 5%	1/16W
R849	1-218-837-11	METAL CHIP 390 0.5%	1/16W
R850	1-218-835-11	METAL CHIP 330 0.5%	1/16W
R851	1-218-835-11	METAL CHIP 330 0.5%	1/16W
R852	1-218-837-11	METAL CHIP 390 0.5%	1/16W
R858	1-216-816-11	METAL CHIP 390 5%	1/16W

\* A-7073-472-A RS-78 BOARD, COMPLETE  
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 (Ref.No. 6,000 Series)

## &lt; CAPACITOR &gt;

C001	1-164-346-11	CERAMIC CHIP 1uF	16V
C002	1-164-346-11	CERAMIC CHIP 1uF	16V
C003	1-164-346-11	CERAMIC CHIP 1uF	16V
C004	1-164-346-11	CERAMIC CHIP 1uF	16V
C005	1-164-346-11	CERAMIC CHIP 1uF	16V
C006	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C007	1-126-206-11	ELECT CHIP 100uF 20%	6.3V

## &lt; CONNECTOR &gt;

CN001	1-770-693-11	CONNECTOR, FFC/FPC 10P
CN002	1-565-388-21	CONNECTOR, D-SUB 9P (REMOTE RS-232C)

## &lt; DIODE &gt;

D001	8-719-062-19	DIODE MA3200WA-TX
D002	8-719-062-19	DIODE MA3200WA-TX
D003	8-719-062-19	DIODE MA3200WA-TX
D004	8-719-062-19	DIODE MA3200WA-TX
D005	8-719-062-19	DIODE MA3200WA-TX

## &lt; FERRITE BEAD &gt;

FB001	1-500-241-22	FERRITE 0uH
FB002	1-500-241-22	FERRITE 0uH
FB003	1-500-241-22	FERRITE 0uH
FB004	1-500-241-22	FERRITE 0uH
FB005	1-500-241-22	FERRITE 0uH

Ref. No.	Part No.	Description	Remark
		< IC >	
IC002	8-759-521-15	IC MAX232CWE-TE-2	
		< COIL >	
L001	1-412-029-11	INDUCTOR CHIP 10uH	
*	A-7067-250-A	VA-102 BOARD, COMPLETE (DSR-20MD)	
*	A-7067-251-A	VA-102 BOARD, COMPLETE (DSR-20MDP)	
		*****	
		(Ref.No. 1,000 Series)	
		< CAPACITOR >	
C051	1-113-619-11	CERAMIC CHIP 0.47uF	10V
C052	1-164-230-11	CERAMIC CHIP 220PF 5%	50V
C053	1-113-619-11	CERAMIC CHIP 0.47uF	10V
C055	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C056	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C057	1-162-927-11	CERAMIC CHIP 100PF 5%	50V
C058	1-162-927-11	CERAMIC CHIP 100PF 5%	50V
C059	1-124-778-00	ELECT CHIP 22uF 20%	6.3V
C101	1-128-004-11	ELECT CHIP 10uF 20%	16V
C102	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C103	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C104	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C105	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C106	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C107	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C108	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C109	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C110	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C111	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C201	1-124-778-00	ELECT CHIP 22uF 20%	6.3V
C202	1-124-778-00	ELECT CHIP 22uF 20%	6.3V
C203	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C204	1-126-206-11	ELECT CHIP 100uF 20%	6.3V
C205	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C206	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C207	1-162-958-11	CERAMIC CHIP 270PF 5%	50V
C208	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C209	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C210	1-162-923-11	CERAMIC CHIP 47PF 5%	50V
C211	1-124-778-00	ELECT CHIP 22uF 20%	6.3V
C212	1-124-778-00	ELECT CHIP 22uF 20%	6.3V
C213	1-128-003-11	ELECT CHIP 22uF 20%	4V
C214	1-128-003-11	ELECT CHIP 22uF 20%	4V
C215	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C216	1-128-003-11	ELECT CHIP 22uF 20%	4V
C217	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C218	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C219	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C220	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C221	1-162-915-11	CERAMIC CHIP 10PF 0.5PF	50V
C223	1-162-967-11	CERAMIC CHIP 0.0033uF 10%	50V
C224	1-126-206-11	ELECT CHIP 100uF 20%	6.3V
C225	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C226	1-124-778-00	ELECT CHIP 22uF 20%	6.3V
C227	1-165-176-11	CERAMIC CHIP 0.047uF 10%	16V
C228	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C229	1-128-007-11	ELECT CHIP 2.2uF 20%	35V

Ref. No.	Part No.	Description		Remark	Ref. No.	Part No.	Description		Remark
C230	1-162-974-11	CERAMIC CHIP	0.01uF	50V	C291	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V (DSR-20MDP)
C231	1-128-006-11	ELECT CHIP	4.7uF	20% 25V	C292	1-126-205-11	ELECT CHIP	47uF	20% 6.3V
C232	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C293	1-126-205-11	ELECT CHIP	47uF	20% 6.3V
C233	1-126-205-11	ELECT CHIP	47uF	20% 6.3V	C294	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C234	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C295	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C235	1-124-778-00	ELECT CHIP	22uF	20% 6.3V	C297	1-128-003-11	ELECT CHIP	22uF	20% 4V
C236	1-128-006-11	ELECT CHIP	4.7uF	20% 25V	C300	1-164-360-11	CERAMIC CHIP	0.1uF	16V (DSR-20MDP)
C237	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	C301	1-162-927-11	CERAMIC CHIP	100PF	5% 50V (DSR-20MDP)
C238	1-124-778-00	ELECT CHIP	22uF	20% 6.3V	C304	1-126-205-11	ELECT CHIP	47uF	20% 6.3V
C239	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C305	1-126-205-11	ELECT CHIP	47uF	20% 6.3V
C240	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C307	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C241	1-128-004-11	ELECT CHIP	10uF	20% 16V	C308	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C242	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C309	1-164-360-11	CERAMIC CHIP	0.1uF	16V (DSR-20MDP)
C243	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C311	1-128-004-11	ELECT CHIP	10uF	20% 16V (DSR-20MDP)
C244	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C312	1-164-360-11	CERAMIC CHIP	0.1uF	16V (DSR-20MDP)
C245	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C313	1-126-206-11	ELECT CHIP	100uF	20% 6.3V
C246	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	C314	1-126-206-11	ELECT CHIP	100uF	20% 6.3V
C247	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	C401	1-126-205-11	ELECT CHIP	47uF	20% 6.3V
C248	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	C402	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C249	1-128-006-11	ELECT CHIP	4.7uF	20% 25V	C403	1-128-003-11	ELECT CHIP	22uF	20% 4V
C250	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C404	1-128-003-11	ELECT CHIP	22uF	20% 4V
C251	1-162-911-11	CERAMIC CHIP	6PF	0.5PF 50V (DSR-20MD)	C405	1-128-003-11	ELECT CHIP	22uF	20% 4V
C251	1-162-910-11	CERAMIC CHIP	5PF	0.25PF 50V (DSR-20MDP)	C406	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C252	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C407	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C253	1-162-927-11	CERAMIC CHIP	100PF	5% 50V	C408	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C254	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	C409	1-128-003-11	ELECT CHIP	22uF	20% 4V
C255	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	C410	1-128-007-11	ELECT CHIP	2.2uF	20% 35V
C256	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C411	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C257	1-128-003-11	ELECT CHIP	22uF	20% 4V	C412	1-126-205-11	ELECT CHIP	47uF	20% 6.3V
C258	1-128-003-11	ELECT CHIP	22uF	20% 4V	C413	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C260	1-162-927-11	CERAMIC CHIP	100PF	5% 50V	C414	1-124-778-00	ELECT CHIP	22uF	20% 6.3V
C261	1-162-919-11	CERAMIC CHIP	22PF	5% 50V	C415	1-128-003-11	ELECT CHIP	22uF	20% 4V
C262	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	C416	1-128-003-11	ELECT CHIP	22uF	20% 4V
C264	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C417	1-162-959-11	CERAMIC CHIP	330PF	5% 50V
C265	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	C418	1-162-919-11	CERAMIC CHIP	22PF	5% 50V
C266	1-115-156-11	CERAMIC CHIP	1uF	10V	C419	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C268	1-113-619-11	CERAMIC CHIP	0.47uF	10V	C420	1-115-156-11	CERAMIC CHIP	1uF	10V
C269	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C421	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C270	1-115-156-11	CERAMIC CHIP	1uF	10V	C422	1-164-343-11	CERAMIC CHIP	0.056uF	10% 25V
C271	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	C423	1-163-139-00	CERAMIC CHIP	820PF	5% 50V
C272	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C425	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C273	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C426	1-164-227-11	CERAMIC CHIP	0.022uF	10% 25V
C274	1-165-176-11	CERAMIC CHIP	0.047uF	10% 16V	C427	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C275	1-128-006-11	ELECT CHIP	4.7uF	20% 25V	C429	1-115-156-11	CERAMIC CHIP	1uF	10V
C276	1-126-206-11	ELECT CHIP	100uF	20% 6.3V	C430	1-115-156-11	CERAMIC CHIP	1uF	10V
C277	1-165-176-11	CERAMIC CHIP	0.047uF	10% 16V	C433	1-115-156-11	CERAMIC CHIP	1uF	10V
C278	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	C434	1-115-156-11	CERAMIC CHIP	1uF	10V
C279	1-128-006-11	ELECT CHIP	4.7uF	20% 25V	C435	1-115-156-11	CERAMIC CHIP	1uF	10V
C280	1-128-003-11	ELECT CHIP	22uF	20% 4V	C436	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C281	1-162-911-11	CERAMIC CHIP	6PF	0.5PF 50V	C437	1-128-003-11	ELECT CHIP	22uF	20% 4V
C282	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	C438	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C283	1-162-915-11	CERAMIC CHIP	10PF	0.5PF 50V	C441	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C284	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C443	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C285	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	C444	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C286	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C445	1-115-156-11	CERAMIC CHIP	1uF	10V
C287	1-126-206-11	ELECT CHIP	100uF	20% 6.3V					
C288	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V					
C290	1-128-003-11	ELECT CHIP	22uF	20% 4V					

Ref. No.	Part No.	Description	Remark
C446	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C447	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C448	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C449	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C450	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C451	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C453	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C454	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C455	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C456	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C457	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C459	1-115-156-11	CERAMIC CHIP 1uF	10V
C460	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C461	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C462	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C463	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C464	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C465	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C466	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C467	1-126-205-11	ELECT CHIP 47uF	20% 6.3V
C468	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C469	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C470	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C471	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C472	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C473	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C474	1-126-205-11	ELECT CHIP 47uF	20% 6.3V
C475	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C476	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C477	1-162-909-11	CERAMIC CHIP 4PF	0.25PF 50V (DSR-20MDP)
C478	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C479	1-164-237-11	CERAMIC CHIP 16PF	5% 50V
C480	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C481	1-162-919-11	CERAMIC CHIP 22PF	5% 50V
C482	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C483	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C484	1-162-921-11	CERAMIC CHIP 33PF	5% 50V
C485	1-162-919-11	CERAMIC CHIP 22PF	5% 50V
C486	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C487	1-128-004-11	ELECT CHIP 10uF	20% 16V
C489	1-162-920-11	CERAMIC CHIP 27PF	5% 50V
C490	1-162-905-11	CERAMIC CHIP 1PF	0.25PF 50V
C491	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C492	1-162-915-11	CERAMIC CHIP 10PF	0.5PF 50V
C493	1-128-004-11	ELECT CHIP 10uF	20% 16V
C494	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C496	1-128-007-11	ELECT CHIP 2.2uF	20% 35V
C497	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C498	1-128-003-11	ELECT CHIP 22uF	20% 4V
C500	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C501	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C503	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C505	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C506	1-128-004-11	ELECT CHIP 10uF	20% 16V
C601	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C602	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C603	1-128-004-11	ELECT CHIP 10uF	20% 16V
C604	1-115-156-11	CERAMIC CHIP 1uF	10V
C606	1-128-004-11	ELECT CHIP 10uF	20% 16V
C608	1-128-004-11	ELECT CHIP 10uF	20% 16V

Ref. No.	Part No.	Description	Remark
C612	1-162-920-11	CERAMIC CHIP 27PF	5% 50V (DSR-20MD)
C612	1-162-921-11	CERAMIC CHIP 33PF	5% 50V (DSR-20MDP)
C613	1-162-915-11	CERAMIC CHIP 10PF	0.5PF 50V
C614	1-162-915-11	CERAMIC CHIP 10PF	0.5PF 50V
C615	1-162-917-11	CERAMIC CHIP 15PF	5% 50V (DSR-20MD)
C616	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C618	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C619	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C621	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C624	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C628	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C629	1-164-230-11	CERAMIC CHIP 220PF	5% 50V
C630	1-128-004-11	ELECT CHIP 10uF	20% 16V
C631	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C651	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C652	1-128-004-11	ELECT CHIP 10uF	20% 16V
C653	1-162-909-11	CERAMIC CHIP 4PF	0.25PF 50V (DSR-20MDP)
C654	1-128-003-11	ELECT CHIP 22uF	20% 4V
C655	1-128-004-11	ELECT CHIP 10uF	20% 16V
C656	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C657	1-162-928-11	CERAMIC CHIP 120PF	5% 50V
C658	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C659	1-126-205-11	ELECT CHIP 47uF	20% 6.3V
C660	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C662	1-128-007-11	ELECT CHIP 2.2uF	20% 35V
C663	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C664	1-126-205-11	ELECT CHIP 47uF	20% 6.3V
C665	1-164-237-11	CERAMIC CHIP 16PF	5% 50V
C666	1-162-919-11	CERAMIC CHIP 22PF	5% 50V
C667	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C670	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C671	1-115-156-11	CERAMIC CHIP 1uF	10V
C672	1-162-921-11	CERAMIC CHIP 33PF	5% 50V
C673	1-164-343-11	CERAMIC CHIP 0.056uF	10% 25V
C674	1-162-919-11	CERAMIC CHIP 22PF	5% 50V
C675	1-163-139-00	CERAMIC CHIP 820PF	5% 50V
C676	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C678	1-128-003-11	ELECT CHIP 22uF	20% 4V
C680	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C681	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C682	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C683	1-126-927-11	ELECT 1000uF	20% 6.3V
C701	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C702	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C703	1-162-923-11	CERAMIC CHIP 47PF	5% 50V
C704	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C705	1-162-923-11	CERAMIC CHIP 47PF	5% 50V
C706	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C707	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C708	1-128-004-11	ELECT CHIP 10uF	20% 16V
C709	1-128-004-11	ELECT CHIP 10uF	20% 16V
C710	1-162-919-11	CERAMIC CHIP 22PF	5% 50V
C711	1-162-919-11	CERAMIC CHIP 22PF	5% 50V
C713	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C714	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C715	1-164-389-11	CERAMIC CHIP 300PF	5% 50V

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C716	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C855	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C717	1-164-389-11	CERAMIC CHIP 300PF	5% 50V	C856	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C719	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C858	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C720	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C859	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C721	1-162-923-11	CERAMIC CHIP 47PF	5% 50V	C860	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C722	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C861	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C723	1-124-778-00	ELECT CHIP 22uF	20% 6.3V	C862	1-126-204-11	ELECT CHIP 47uF	20% 16V
C724	1-164-389-11	CERAMIC CHIP 300PF	5% 50V	C863	1-126-400-11	ELECT 22uF	20% 35V
C725	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C864	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C726	1-164-389-11	CERAMIC CHIP 300PF	5% 50V	C865	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C727	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C866	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C728	1-162-923-11	CERAMIC CHIP 47PF	5% 50V	C867	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C729	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C869	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C730	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C870	1-128-013-11	ELECT CHIP 1uF	20% 50V
C731	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C871	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C732	1-124-778-00	ELECT CHIP 22uF	20% 6.3V	C872	1-162-975-11	CERAMIC CHIP 24PF	5% 50V
C733	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C874	1-126-204-11	ELECT CHIP 47uF	20% 16V
C734	1-128-007-11	ELECT CHIP 2.2uF	20% 35V	C875	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C735	1-128-007-11	ELECT CHIP 2.2uF	20% 35V	C876	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C736	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C877	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C737	1-164-389-11	CERAMIC CHIP 300PF	5% 50V	C881	1-126-927-11	ELECT 1000uF	20% 6.3V
C738	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C883	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C739	1-164-389-11	CERAMIC CHIP 300PF	5% 50V	C886	1-162-921-11	CERAMIC CHIP 33PF	5% 50V
C740	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C887	1-162-921-11	CERAMIC CHIP 33PF	5% 50V
C741	1-124-778-00	ELECT CHIP 22uF	20% 6.3V	C888	1-128-004-11	ELECT CHIP 10uF	20% 16V
C742	1-164-389-11	CERAMIC CHIP 300PF	5% 50V	C889	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C743	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C890	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C744	1-164-389-11	CERAMIC CHIP 300PF	5% 50V	C891	1-165-176-11	CERAMIC CHIP 0.047uF	10% 16V
C745	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C892	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C746	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C893	1-126-392-11	ELECT CHIP 100uF	20% 6.3V
C747	1-162-915-11	CERAMIC CHIP 10PF	0.5PF 50V	C894	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C748	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C895	1-126-392-11	ELECT CHIP 100uF	20% 6.3V
C749	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C896	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C750	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C897	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C751	1-162-923-11	CERAMIC CHIP 47PF	5% 50V	C898	1-126-396-11	ELECT CHIP 47uF	20% 16V
C752	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C899	1-126-396-11	ELECT CHIP 47uF	20% 16V
C753	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C900	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C754	1-162-915-11	CERAMIC CHIP 10PF	0.5PF 50V	C901	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C755	1-164-677-11	CERAMIC CHIP 0.033uF	10% 16V	C906	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C756	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C907	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C757	1-164-677-11	CERAMIC CHIP 0.033uF	10% 16V	C908	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C758	1-164-677-11	CERAMIC CHIP 0.033uF	10% 16V	C909	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C759	1-164-677-11	CERAMIC CHIP 0.033uF	10% 16V	C910	1-109-994-11	CERAMIC CHIP 2.2uF	10% 10V
C760	1-162-923-11	CERAMIC CHIP 47PF	5% 50V	C912	1-104-905-11	CAPACITOR 0.22F	5.5V
C761	1-164-677-11	CERAMIC CHIP 0.033uF	10% 16V	C913	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C762	1-164-677-11	CERAMIC CHIP 0.033uF	10% 16V	C914	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C763	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C915	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C764	1-128-004-11	ELECT CHIP 10uF	20% 16V	C916	1-128-013-11	ELECT CHIP 1uF	20% 50V
C765	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C917	1-126-197-11	ELECT CHIP 10uF	20% 50V
C766	1-128-004-11	ELECT CHIP 10uF	20% 16V	C918	1-126-204-11	ELECT CHIP 47uF	20% 16V
C767	1-164-677-11	CERAMIC CHIP 0.033uF	10% 16V	C919	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C768	1-164-677-11	CERAMIC CHIP 0.033uF	10% 16V	C920	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C771	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C921	1-126-393-11	ELECT CHIP 33uF	20% 10V
C772	1-162-923-11	CERAMIC CHIP 47PF	5% 50V	C922	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C773	1-164-360-11	CERAMIC CHIP 0.1uF	16V	< CONNECTOR >			
C774	1-162-923-11	CERAMIC CHIP 47PF	5% 50V	CN051	1-770-305-11	CONNECTOR, FFC/FPC 10P	
C851	1-164-360-11	CERAMIC CHIP 0.1uF	16V	CN101	1-774-770-11	CONNECTOR, FFC/FPC 30P	
C852	1-164-360-11	CERAMIC CHIP 0.1uF	16V	CN102	1-774-770-11	CONNECTOR, FFC/FPC 30P	
C853	1-164-360-11	CERAMIC CHIP 0.1uF	16V	CN401	1-774-767-11	CONNECTOR, FFC/FPC 15P	
C854	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	* CN601	1-564-005-11	PIN, CONNECTOR 6P	

# VA-102

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
CN602	1-779-369-11	CONNECTOR, SQUARE TYPE (INDI) 4P (DV IN/OUT)		IC104	8-759-079-53	IC TC74VHCT08FS (EL)	
* CN701	1-691-591-11	PIN, CONNECTOR (1.5mm) (SMD) 8P		IC105	8-759-079-53	IC TC74VHCT08FS (EL)	
CN702	1-778-276-11	CONNECTOR, FFC/FPC 12P		IC106	8-759-079-53	IC TC74VHCT08FS (EL)	
CN703	1-774-767-11	CONNECTOR, FFC/FPC 15P		IC201	8-759-337-26	IC MM1115XFBE	
CN851	1-774-770-11	CONNECTOR, FFC/FPC 30P					
CN852	1-506-473-11	PIN, CONNECTOR 8P		IC202	8-759-433-44	IC MM1031XML	
		< TRIMMER >		IC203	8-759-337-26	IC MM1115XFBE	
CT201	1-141-424-11	CAP, ADJ (DECODER FREERUN)		IC204	8-759-432-78	IC MM1111XFBE	
CT401	1-141-424-11	CAP, ADJ (ENCODER FREERUN)		IC205	8-759-420-62	IC AN3916	
		< DIODE >		IC206	8-759-711-62	IC NJM2240M (TE2)	
D051	8-719-421-71	DIODE MA132WA-TX		IC207	8-752-352-20	IC CXD2023Q (DSR-20MD)	
D052	8-719-421-71	DIODE MA132WA-TX		IC207	8-752-372-78	IC CXD2024AQ-TL (DSR-20MDP)	
D201	8-719-073-01	DIODE MA111-TX		IC208	8-759-603-54	IC M51271FP-70AD	
D202	8-719-073-01	DIODE MA111-TX		IC210	8-759-239-58	IC TC74HC221AF (EL) (DSR-20MDP)	
D401	8-713-101-85	DIODE 1T363-01-T8A		IC213	8-759-058-54	IC TC7S00FU (TE85R) (DSR-20MDP)	
				IC401	8-759-337-26	IC MM1115XFBE	
D403	8-719-073-01	DIODE MA111-TX		IC402	8-759-432-78	IC MM1111XFBE	
D404	8-719-073-01	DIODE MA111-TX		IC403	8-759-164-09	IC LA7218M-TE-R	
D851	8-719-421-59	DIODE MA3075WA- (TX)		IC404	8-752-056-59	IC CXA1592R-T4	
D852	8-719-421-59	DIODE MA3075WA- (TX)		IC405	8-759-483-56	IC MB90089PF-G-196-BND-ER	
D853	8-719-400-71	DIODE MA3082-TX					
				IC406	8-759-182-16	IC MM1196XFBE	
D855	8-719-421-51	DIODE MA738-TX		IC407	8-752-374-89	IC CXD2192Q-T4	
D856	8-719-073-28	DIODE MA729- (K8).S0		IC602	8-759-349-01	IC MC68HC68VBIFB	
D858	8-719-073-01	DIODE MA111-TX		IC651	8-759-368-82	IC MB90089PF-G-155-BND-ER	
D859	8-719-073-01	DIODE MA111-TX		IC652	8-759-164-09	IC LA7218M-TE-R	
D861	8-719-400-56	DIODE MA3062H-TX					
				IC653	8-759-337-26	IC MM1115XFBE	
D862	8-719-421-59	DIODE MA3075WA- (TX)		IC701	8-759-358-47	IC NJM2115V (TE2)	
D863	8-719-059-18	DIODE RD6.2FM-T1		IC702	8-759-523-02	IC TC74HC4053AFT (EL)	
D864	8-719-421-27	DIODE MA728- (K8).S0		IC703	8-759-523-02	IC TC74HC4053AFT (EL)	
D866	8-719-073-01	DIODE MA111-TX		IC704	8-759-358-47	IC NJM2115V (TE2)	
D867	8-719-421-51	DIODE MA738-TX					
		< DELAY LINE >		IC705	8-759-358-47	IC NJM2115V (TE2)	
DL201	1-411-661-11	LINE, LC DELAY		IC706	8-759-358-47	IC NJM2115V (TE2)	
		< FERRITE BEAD >		IC707	8-759-358-47	IC NJM2115V (TE2)	
FB851	1-543-948-22	FERRITE OuH		IC708	8-759-481-66	IC DS1801E-014TE2	
FB852	1-543-948-22	FERRITE OuH		IC709	8-759-358-47	IC NJM2115V (TE2)	
FB853	1-543-948-22	FERRITE OuH					
		< FILTER >		IC710	8-759-358-47	IC NJM2115V (TE2)	
FL201	1-236-925-11	FILTER, LOW PASS		IC711	8-759-523-02	IC TC74HC4053AFT (EL)	
FL202	1-236-926-11	FILTER, BAND PASS (DSR-20MD)		IC712	8-759-358-47	IC NJM2115V (TE2)	
FL203	1-239-153-11	FILTER, BAND PASS (DSR-20MDP)		IC713	8-759-358-47	IC NJM2115V (TE2)	
FL204	1-233-501-11	FILTER, LOW PASS		IC714	8-759-358-47	IC NJM2115V (TE2)	
FL205	1-233-501-11	FILTER, LOW PASS		IC715	8-759-358-47	IC NJM2115V (TE2)	
FL401	1-233-502-11	FILTER, BAND PASS (DSR-20MD)		IC716	8-759-358-47	IC NJM2115V (TE2)	
FL401	1-233-591-11	FILTER, BAND PASS (DSR-20MDP)		IC717	8-759-358-47	IC NJM2115V (TE2)	
		< IC >		IC718	8-759-358-47	IC NJM2115V (TE2)	
IC051	8-759-032-23	IC TC74HC74AF (EL)		IC851	8-759-356-27	IC NJM2129M-TE2	
IC052	8-759-521-97	IC HD6433837SC05H					
IC053	8-759-096-87	IC TC7WU04FU (TE12R)		IC852	8-759-545-30	IC S579178PJ	
IC101	8-759-523-81	IC TC74VHC08FT (EL)		IC853	8-759-523-02	IC TC74HC4053AFT (EL)	
IC102	8-759-327-60	IC TC7W125FU-TE12R		IC854	8-759-445-93	IC AK6440AM-E2	
				IC856	1-473-301-11	CONVERTER UNIT, DC/DC	
IC103	8-759-524-04	IC TC74VHC125FT (EL)		IC857	8-759-538-14	IC S-3513BEFS-TB	
				IC858	8-759-248-87	IC MM1256XF-BE	
				IC861	8-759-536-72	IC TL1596CPW-ELM2000	
				IC862	8-759-822-95	IC L79M05T-FA-TL	
				IC863	8-759-157-22	IC PQ05TZ1U	
				IC864	8-759-929-26	IC TL431CPSR	
				IC865	8-759-523-78	IC TC74VHC00FT (EL)	
				IC866	8-759-363-18	IC TC7ST04FU (TE85R)	
						< JACK >	
				J851	1-573-798-11	JACK, MINIATURE (DIA. 3.5) (CONTROL S IN)	

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
J852	1-573-798-11	JACK, MINIATURE (DIA. 3.5)	(CONTROL S OUT)	Q202	8-729-905-35	TRANSISTOR	2SC4081T106R
J853	1-691-258-11	JACK (LANC)		Q203	8-729-905-35	TRANSISTOR	2SC4081T106R
		< COIL >		Q204	8-729-905-35	TRANSISTOR	2SC4081T106R
L051	1-412-029-11	INDUCTOR CHIP 10uH		Q205	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
L201	1-412-029-11	INDUCTOR CHIP 10uH		Q206	8-729-905-35	TRANSISTOR	2SC4081T106R
L202	1-410-381-11	INDUCTOR CHIP 10uH		Q207	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
L203	1-412-029-11	INDUCTOR CHIP 10uH		Q208	8-729-427-83	TRANSISTOR	XP6501-TXE
L204	1-412-029-11	INDUCTOR CHIP 10uH		Q209	8-729-905-35	TRANSISTOR	2SC4081T106R
L205	1-412-029-11	INDUCTOR CHIP 10uH		Q210	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
L206	1-412-029-11	INDUCTOR CHIP 10uH		Q211	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
L207	1-412-029-11	INDUCTOR CHIP 10uH		Q212	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
L208	1-410-381-11	INDUCTOR CHIP 10uH		Q213	8-729-905-35	TRANSISTOR	2SC4081T106R
L211	1-412-808-21	INDUCTOR 470uH		Q214	8-729-905-35	TRANSISTOR	2SC4081T106R
L213	1-412-031-11	INDUCTOR CHIP 47uH		Q215	8-729-905-35	TRANSISTOR	2SC4081T106R
L216	1-412-029-11	INDUCTOR CHIP 10uH		Q216	8-729-905-35	TRANSISTOR	2SC4081T106R
L217	1-412-029-11	INDUCTOR CHIP 10uH		Q217	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
L218	1-412-029-11	INDUCTOR CHIP 10uH		Q218	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
L219	1-412-029-11	INDUCTOR CHIP 10uH		Q221	8-729-905-35	TRANSISTOR	2SC4081T106R
L220	1-412-029-11	INDUCTOR CHIP 10uH (DSR-20MDP)		Q222	8-729-905-35	TRANSISTOR	2SC4081T106R
L401	1-412-029-11	INDUCTOR CHIP 10uH		Q223	8-729-905-35	TRANSISTOR	2SC4081T106R
L402	1-412-029-11	INDUCTOR CHIP 10uH		Q224	8-729-427-83	TRANSISTOR	XP6501-TXE
L403	1-412-029-11	INDUCTOR CHIP 10uH		Q225	8-729-905-35	TRANSISTOR	2SC4081T106R
L404	1-412-029-11	INDUCTOR CHIP 10uH		Q226	8-729-905-35	TRANSISTOR	2SC4081T106R
L406	1-412-030-11	INDUCTOR CHIP 22uH		Q227	8-729-905-35	TRANSISTOR	2SC4081T106R
L407	1-412-029-11	INDUCTOR CHIP 10uH		Q228	8-729-427-83	TRANSISTOR	XP6501-TXE
L408	1-412-026-11	INDUCTOR CHIP 1uH		Q229	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
L409	1-412-034-11	INDUCTOR CHIP 330uH		Q231	8-729-905-35	TRANSISTOR	2SC4081T106R
L410	1-410-385-11	INDUCTOR CHIP 22uH		Q232	8-729-427-83	TRANSISTOR	XP6501-TXE
L411	1-412-029-11	INDUCTOR CHIP 10uH		Q233	8-729-905-35	TRANSISTOR	2SC4081T106R
L412	1-412-029-11	INDUCTOR CHIP 10uH		Q403	8-729-905-35	TRANSISTOR	2SC4081T106R
L601	1-412-029-11	INDUCTOR CHIP 10uH		Q404	8-729-905-35	TRANSISTOR	2SC4081T106R
L602	1-410-389-31	INDUCTOR CHIP 47uH (DSR-20MD)		Q405	8-729-905-35	TRANSISTOR	2SC4081T106R
L602	1-410-388-31	INDUCTOR CHIP 39uH (DSR-20MDP)		Q406	8-729-905-35	TRANSISTOR	2SC4081T106R
L603	1-412-029-11	INDUCTOR CHIP 10uH		Q407	8-729-427-83	TRANSISTOR	XP6501-TXE
L604	1-412-029-11	INDUCTOR CHIP 10uH		Q408	8-729-402-42	TRANSISTOR	UN5213-TX
L651	1-412-029-11	INDUCTOR CHIP 10uH		Q409	8-729-015-76	TRANSISTOR	UN5211-TX
L652	1-410-385-11	INDUCTOR CHIP 22uH		Q410	8-729-905-35	TRANSISTOR	2SC4081T106R
L653	1-410-385-11	INDUCTOR CHIP 22uH		Q411	8-729-905-35	TRANSISTOR	2SC4081T106R
L654	1-412-029-11	INDUCTOR CHIP 10uH		Q412	8-729-905-35	TRANSISTOR	2SC4081T106R
L655	1-412-026-11	INDUCTOR CHIP 1uH		Q413	8-729-905-35	TRANSISTOR	2SC4081T106R
L656	1-410-385-11	INDUCTOR CHIP 22uH		Q414	8-729-905-35	TRANSISTOR	2SC4081T106R
L657	1-412-029-11	INDUCTOR CHIP 10uH		Q415	8-729-427-83	TRANSISTOR	XP6501-TXE
L851	1-412-026-11	INDUCTOR CHIP 1uH		Q416	8-729-402-84	TRANSISTOR	XN4601-TW
L852	1-412-026-11	INDUCTOR CHIP 1uH		Q417	8-729-427-83	TRANSISTOR	XP6501-TXE
L853	1-412-031-11	INDUCTOR CHIP 47uH		Q419	8-729-905-35	TRANSISTOR	2SC4081T106R
L854	1-412-029-11	INDUCTOR CHIP 10uH		Q420	8-729-905-35	TRANSISTOR	2SC4081T106R
L855	1-412-028-11	INDUCTOR CHIP 4.7uH		Q601	8-729-905-35	TRANSISTOR	2SC4081T106R
L856	1-412-028-11	INDUCTOR CHIP 4.7uH		Q602	8-729-905-35	TRANSISTOR	2SC4081T106R
L857	1-412-028-11	INDUCTOR CHIP 4.7uH		Q604	8-729-905-35	TRANSISTOR	2SC4081T106R
L858	1-412-028-11	INDUCTOR CHIP 4.7uH		Q605	8-729-905-35	TRANSISTOR	2SC4081T106R
		< TRANSISTOR >		Q606	8-729-905-35	TRANSISTOR	2SC4081T106R
Q101	8-729-015-76	TRANSISTOR UN5211-TX		Q607	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
Q102	8-729-015-76	TRANSISTOR UN5211-TX		Q613	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
Q103	8-729-015-76	TRANSISTOR UN5211-TX		Q651	8-729-905-35	TRANSISTOR	2SC4081T106R
Q107	8-729-015-76	TRANSISTOR UN5211-TX		Q653	8-729-905-35	TRANSISTOR	2SC4081T106R
Q108	8-729-015-76	TRANSISTOR UN5211-TX		Q655	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
Q201	8-729-905-35	TRANSISTOR 2SC4081T106R		Q656	8-729-905-35	TRANSISTOR	2SC4081T106R
				Q658	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
				Q701	8-729-015-76	TRANSISTOR	UN5211-TX
				Q702	8-729-015-74	TRANSISTOR	UN5111-TX



Ref. No.	Part No.	Description	Remark		
Q703	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q704	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q705	8-729-402-42	TRANSISTOR	UN5213-TX		
Q706	8-729-403-35	TRANSISTOR	UN5113-TX		
Q707	8-729-015-76	TRANSISTOR	UN5211-TX		
Q708	8-729-028-70	TRANSISTOR	UN2225T- (TX)		
Q709	8-729-028-70	TRANSISTOR	UN2225T- (TX)		
Q710	8-729-028-70	TRANSISTOR	UN2225T- (TX)		
Q711	8-729-028-70	TRANSISTOR	UN2225T- (TX)		
Q712	8-729-028-70	TRANSISTOR	UN2225T- (TX)		
Q713	8-729-028-70	TRANSISTOR	UN2225T- (TX)		
Q851	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q852	8-729-402-42	TRANSISTOR	UN5213-TX		
Q853	8-729-014-91	TRANSISTOR	2SD2185S-TX		
Q854	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q855	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q856	8-729-403-35	TRANSISTOR	UN5113-TX		
Q857	8-729-402-42	TRANSISTOR	UN5213-TX		
< RESISTOR >					
R051	1-216-833-91	RES, CHIP	10K	5%	1/16W
R052	1-216-833-91	RES, CHIP	10K	5%	1/16W
R053	1-216-833-91	RES, CHIP	10K	5%	1/16W
R054	1-216-833-91	RES, CHIP	10K	5%	1/16W
R056	1-216-864-11	METAL CHIP	0	5%	1/16W
R059	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R060	1-216-801-11	METAL CHIP	22	5%	1/16W
R061	1-216-857-11	METAL CHIP	1M	5%	1/16W
R062	1-216-801-11	METAL CHIP	22	5%	1/16W
R063	1-216-801-11	METAL CHIP	22	5%	1/16W
R064	1-216-833-91	RES, CHIP	10K	5%	1/16W
R065	1-216-864-11	METAL CHIP	0	5%	1/16W
(DSR-20MDP)					
R066	1-216-801-11	METAL CHIP	22	5%	1/16W
R067	1-216-857-11	METAL CHIP	1M	5%	1/16W
R068	1-216-801-11	METAL CHIP	22	5%	1/16W
R069	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R070	1-216-833-91	RES, CHIP	10K	5%	1/16W
R071	1-216-833-91	RES, CHIP	10K	5%	1/16W
R101	1-216-797-11	METAL CHIP	10	5%	1/16W
R102	1-216-797-11	METAL CHIP	10	5%	1/16W
R103	1-216-833-91	RES, CHIP	10K	5%	1/16W
R104	1-216-833-91	RES, CHIP	10K	5%	1/16W
R105	1-216-797-11	METAL CHIP	10	5%	1/16W
R106	1-216-797-11	METAL CHIP	10	5%	1/16W
R107	1-216-797-11	METAL CHIP	10	5%	1/16W
R108	1-216-833-91	RES, CHIP	10K	5%	1/16W
R109	1-216-797-11	METAL CHIP	10	5%	1/16W
R110	1-216-797-11	METAL CHIP	10	5%	1/16W
R112	1-216-833-91	RES, CHIP	10K	5%	1/16W
R113	1-216-864-11	METAL CHIP	0	5%	1/16W
R114	1-216-809-11	METAL CHIP	100	5%	1/16W
R115	1-216-809-11	METAL CHIP	100	5%	1/16W
R117	1-216-809-11	METAL CHIP	100	5%	1/16W
R118	1-216-797-11	METAL CHIP	10	5%	1/16W
R119	1-216-797-11	METAL CHIP	10	5%	1/16W
(DSR-20MDP)					
R120	1-216-809-11	METAL CHIP	100	5%	1/16W
R121	1-216-809-11	METAL CHIP	100	5%	1/16W
R122	1-216-809-11	METAL CHIP	100	5%	1/16W
R123	1-216-809-11	METAL CHIP	100	5%	1/16W

Ref. No.	Part No.	Description	Remark		
R124	1-216-809-11	METAL CHIP	100	5%	1/16W
R125	1-216-809-11	METAL CHIP	100	5%	1/16W
R126	1-216-809-11	METAL CHIP	100	5%	1/16W
R127	1-216-797-11	METAL CHIP	10	5%	1/16W
R128	1-216-809-11	METAL CHIP	100	5%	1/16W
R129	1-216-797-11	METAL CHIP	10	5%	1/16W
R130	1-216-809-11	METAL CHIP	100	5%	1/16W
R131	1-216-809-11	METAL CHIP	100	5%	1/16W
R132	1-216-797-11	METAL CHIP	10	5%	1/16W
R133	1-216-809-11	METAL CHIP	100	5%	1/16W
R134	1-216-797-11	METAL CHIP	10	5%	1/16W
R135	1-216-809-11	METAL CHIP	100	5%	1/16W
R136	1-216-809-11	METAL CHIP	100	5%	1/16W
R137	1-216-809-11	METAL CHIP	100	5%	1/16W
R138	1-216-809-11	METAL CHIP	100	5%	1/16W
R139	1-216-809-11	METAL CHIP	100	5%	1/16W
R140	1-216-809-11	METAL CHIP	100	5%	1/16W
R141	1-216-809-11	METAL CHIP	100	5%	1/16W
R142	1-216-809-11	METAL CHIP	100	5%	1/16W
R143	1-216-809-11	METAL CHIP	100	5%	1/16W
R144	1-216-809-11	METAL CHIP	100	5%	1/16W
R145	1-216-809-11	METAL CHIP	100	5%	1/16W
R146	1-216-797-11	METAL CHIP	10	5%	1/16W
R147	1-216-797-11	METAL CHIP	10	5%	1/16W
R148	1-216-797-11	METAL CHIP	10	5%	1/16W
R152	1-216-833-91	RES, CHIP	10K	5%	1/16W
R153	1-216-833-91	RES, CHIP	10K	5%	1/16W
R154	1-216-833-91	RES, CHIP	10K	5%	1/16W
R155	1-216-821-11	METAL CHIP	1K	5%	1/16W
R156	1-216-809-11	METAL CHIP	100	5%	1/16W
R157	1-216-809-11	METAL CHIP	100	5%	1/16W
R158	1-216-809-11	METAL CHIP	100	5%	1/16W
R159	1-216-809-11	METAL CHIP	100	5%	1/16W
R160	1-216-809-11	METAL CHIP	100	5%	1/16W
R161	1-216-809-11	METAL CHIP	100	5%	1/16W
R162	1-216-809-11	METAL CHIP	100	5%	1/16W
R163	1-216-809-11	METAL CHIP	100	5%	1/16W
R164	1-216-809-11	METAL CHIP	100	5%	1/16W
R165	1-216-809-11	METAL CHIP	100	5%	1/16W
R166	1-216-833-91	RES, CHIP	10K	5%	1/16W
R167	1-216-809-11	METAL CHIP	100	5%	1/16W
R168	1-216-809-11	METAL CHIP	100	5%	1/16W
R169	1-216-809-11	METAL CHIP	100	5%	1/16W
R170	1-216-833-91	RES, CHIP	10K	5%	1/16W
R171	1-216-809-11	METAL CHIP	100	5%	1/16W
R172	1-216-809-11	METAL CHIP	100	5%	1/16W
R173	1-216-809-11	METAL CHIP	100	5%	1/16W
R174	1-216-809-11	METAL CHIP	100	5%	1/16W
R175	1-216-809-11	METAL CHIP	100	5%	1/16W
R176	1-216-809-11	METAL CHIP	100	5%	1/16W
R177	1-216-809-11	METAL CHIP	100	5%	1/16W
R178	1-216-809-11	METAL CHIP	100	5%	1/16W
R179	1-216-809-11	METAL CHIP	100	5%	1/16W
R180	1-216-809-11	METAL CHIP	100	5%	1/16W
R181	1-216-809-11	METAL CHIP	100	5%	1/16W
R201	1-216-805-11	METAL CHIP	47	5%	1/16W
R202	1-216-821-11	METAL CHIP	1K	5%	1/16W
R203	1-216-810-11	METAL CHIP	120	5%	1/16W
R204	1-216-821-11	METAL CHIP	1K	5%	1/16W
R205	1-216-837-11	METAL CHIP	22K	5%	1/16W

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
R206	1-216-833-91	RES, CHIP	10K	5%	1/16W	R272	1-216-821-11	METAL CHIP	1K	5%	1/16W
R207	1-216-821-11	METAL CHIP	1K	5%	1/16W	R273	1-216-819-11	METAL CHIP	680	5%	1/16W
R208	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R274	1-216-818-11	METAL CHIP	560	5%	1/16W
R209	1-216-821-11	METAL CHIP	1K	5%	1/16W	R275	1-216-809-11	METAL CHIP	100	5%	1/16W
R210	1-216-821-11	METAL CHIP	1K	5%	1/16W	R276	1-216-821-11	METAL CHIP	1K	5%	1/16W
R211	1-216-837-11	METAL CHIP	22K	5%	1/16W	R277	1-216-864-11	METAL CHIP	0	5%	1/16W
R212	1-216-834-11	METAL CHIP	12K	5%	1/16W	R279	1-216-821-11	METAL CHIP	1K	5%	1/16W
R213	1-216-821-11	METAL CHIP	1K	5%	1/16W	R280	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R214	1-216-817-11	METAL CHIP	470	5%	1/16W	R281	1-216-817-11	METAL CHIP	470	5%	1/16W
R215	1-216-816-11	METAL CHIP	390	5%	1/16W	R282	1-218-899-11	METAL CHIP	150K	0.5%	1/16W
R216	1-216-821-11	METAL CHIP	1K	5%	1/16W	R283	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
R217	1-216-807-11	METAL CHIP	68	5%	1/16W	R284	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R218	1-216-837-11	METAL CHIP	22K	5%	1/16W	R285	1-216-864-11	METAL CHIP	0	5%	1/16W
R219	1-216-833-91	RES, CHIP	10K	5%	1/16W	R287	1-218-879-11	METAL CHIP	22K	0.5%	1/16W
R220	1-216-821-11	METAL CHIP	1K	5%	1/16W	R288	1-216-844-11	METAL CHIP	82K	5%	1/16W
R221	1-216-817-11	METAL CHIP	470	5%	1/16W	R289	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R222	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	R290	1-218-869-11	METAL CHIP	8.2K	0.5%	1/16W
R223	1-216-821-11	METAL CHIP	1K	5%	1/16W	R291	1-216-817-11	METAL CHIP	470	5%	1/16W
R224	1-216-841-11	METAL CHIP	47K	5%	1/16W	R292	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
R225	1-216-817-11	METAL CHIP	470	5%	1/16W	R293	1-216-833-91	RES, CHIP	10K	5%	1/16W (DSR-20MD)
R226	1-216-809-11	METAL CHIP	100	5%	1/16W	R294	1-216-821-11	METAL CHIP	1K	5%	1/16W
R227	1-216-821-11	METAL CHIP	1K	5%	1/16W	R295	1-216-853-11	METAL CHIP	470K	5%	1/16W
R228	1-216-809-11	METAL CHIP	100	5%	1/16W	R296	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R229	1-216-821-11	METAL CHIP	1K	5%	1/16W	R297	1-216-819-11	METAL CHIP	680	5%	1/16W
R231	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	R298	1-216-818-11	METAL CHIP	560	5%	1/16W
R232	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R299	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R233	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R300	1-216-805-11	METAL CHIP	47	5%	1/16W
R234	1-216-809-11	METAL CHIP	100	5%	1/16W	R301	1-216-815-11	METAL CHIP	330	5%	1/16W
R235	1-216-845-11	METAL CHIP	100K	5%	1/16W	R302	1-216-837-11	METAL CHIP	22K	5%	1/16W
R236	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R303	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MDP)
R237	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	R304	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MD)
R241	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MDP)	R305	1-216-819-11	METAL CHIP	680	5%	1/16W
R242	1-216-833-91	RES, CHIP	10K	5%	1/16W	R306	1-216-811-11	METAL CHIP	150	5%	1/16W
R244	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	R308	1-216-816-11	METAL CHIP	390	5%	1/16W
R246	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R309	1-216-845-11	METAL CHIP	100K	5%	1/16W
R248	1-216-813-11	METAL CHIP	220	5%	1/16W	R310	1-216-837-11	METAL CHIP	22K	5%	1/16W
R249	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MD)	R311	1-216-837-11	METAL CHIP	22K	5%	1/16W
R250	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	R312	1-216-818-11	METAL CHIP	560	5%	1/16W
R251	1-216-813-11	METAL CHIP	220	5%	1/16W	R313	1-216-821-11	METAL CHIP	1K	5%	1/16W
R252	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R314	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R253	1-216-818-11	METAL CHIP	560	5%	1/16W	R315	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R254	1-218-863-11	METAL CHIP	4.7K	0.5%	1/16W	R316	1-216-821-11	METAL CHIP	1K	5%	1/16W
R255	1-218-707-11	RES, CHIP	4.3K	5%	1/16W	R317	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R256	1-218-269-11	RES, CHIP	360	5%	1/16W	R318	1-216-837-11	METAL CHIP	22K	5%	1/16W
R257	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MD)	R319	1-216-840-11	METAL CHIP	39K	5%	1/16W (DSR-20MDP)
R258	1-218-823-11	METAL CHIP	100	0.5%	1/16W	R320	1-216-837-11	METAL CHIP	22K	5%	1/16W
R259	1-216-864-11	METAL CHIP	0	5%	1/16W	R321	1-216-839-11	METAL CHIP	33K	5%	1/16W
R260	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R323	1-216-818-11	METAL CHIP	560	5%	1/16W
R261	1-216-849-11	METAL CHIP	220K	5%	1/16W	R324	1-216-809-11	METAL CHIP	100	5%	1/16W
R262	1-216-809-11	METAL CHIP	100	5%	1/16W	R325	1-216-816-11	METAL CHIP	390	5%	1/16W
R263	1-216-821-11	METAL CHIP	1K	5%	1/16W	R326	1-216-821-11	METAL CHIP	1K	5%	1/16W
R264	1-216-818-11	METAL CHIP	560	5%	1/16W	R327	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R265	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R328	1-216-839-11	METAL CHIP	33K	5%	1/16W (DSR-20MDP)
R266	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R329	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R269	1-216-837-11	METAL CHIP	22K	5%	1/16W	R330	1-218-869-11	METAL CHIP	8.2K	0.5%	1/16W
R270	1-216-864-11	METAL CHIP	0	5%	1/16W	R401	1-216-821-11	METAL CHIP	1K	5%	1/16W
R271	1-216-837-11	METAL CHIP	22K	5%	1/16W						

Ref. No.	Part No.	Description	Remark
R402	1-216-864-11	METAL CHIP	0 5% 1/16W
R404	1-216-864-11	METAL CHIP	0 5% 1/16W
			(DSR-20MDP)
R406	1-216-864-11	METAL CHIP	0 5% 1/16W
			(DSR-20MD)
R407	1-216-835-11	METAL CHIP	15K 5% 1/16W
R408	1-216-833-91	RES, CHIP	10K 5% 1/16W
R410	1-216-817-11	METAL CHIP	470 5% 1/16W
R411	1-216-864-11	METAL CHIP	0 5% 1/16W
R412	1-216-837-11	METAL CHIP	22K 5% 1/16W
R413	1-216-817-11	METAL CHIP	470 5% 1/16W
R414	1-216-819-11	METAL CHIP	680 5% 1/16W
R415	1-216-864-11	METAL CHIP	0 5% 1/16W
R416	1-216-835-11	METAL CHIP	15K 5% 1/16W
R417	1-216-833-91	RES, CHIP	10K 5% 1/16W
R418	1-216-835-11	METAL CHIP	15K 5% 1/16W
R419	1-216-833-91	RES, CHIP	10K 5% 1/16W
R420	1-216-813-11	METAL CHIP	220 5% 1/16W
R421	1-216-828-11	METAL CHIP	3.9K 5% 1/16W
R422	1-216-847-11	METAL CHIP	150K 5% 1/16W
R423	1-216-864-11	METAL CHIP	0 5% 1/16W
R424	1-216-821-11	METAL CHIP	1K 5% 1/16W
R425	1-216-817-11	METAL CHIP	470 5% 1/16W
R426	1-216-818-11	METAL CHIP	560 5% 1/16W
R427	1-216-821-11	METAL CHIP	1K 5% 1/16W
			(DSR-20MDP)
R428	1-216-821-11	METAL CHIP	1K 5% 1/16W
R429	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R430	1-216-833-91	RES, CHIP	10K 5% 1/16W
R431	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R433	1-216-833-91	RES, CHIP	10K 5% 1/16W
R434	1-216-821-11	METAL CHIP	1K 5% 1/16W
			(DSR-20MDP)
R436	1-216-817-11	METAL CHIP	470 5% 1/16W
R437	1-216-821-11	METAL CHIP	1K 5% 1/16W
R438	1-216-864-11	METAL CHIP	0 5% 1/16W
R439	1-216-837-11	METAL CHIP	22K 5% 1/16W
R440	1-216-821-11	METAL CHIP	1K 5% 1/16W
R441	1-216-819-11	METAL CHIP	680 5% 1/16W
R442	1-216-837-11	METAL CHIP	22K 5% 1/16W
R443	1-216-819-11	METAL CHIP	680 5% 1/16W
R444	1-216-837-11	METAL CHIP	22K 5% 1/16W
R445	1-218-838-11	METAL CHIP	430 0.5% 1/16W
R446	1-216-833-91	RES, CHIP	10K 5% 1/16W
R447	1-216-817-11	METAL CHIP	470 5% 1/16W
R449	1-216-864-11	METAL CHIP	0 5% 1/16W
			(DSR-20MD)
R450	1-218-839-11	METAL CHIP	470 0.5% 1/16W
R451	1-218-846-11	METAL CHIP	910 0.5% 1/16W
R452	1-216-864-11	METAL CHIP	0 5% 1/16W
			(DSR-20MDP)
R453	1-216-819-11	METAL CHIP	680 5% 1/16W
R454	1-216-864-11	METAL CHIP	0 5% 1/16W
R458	1-216-864-11	METAL CHIP	0 5% 1/16W
R459	1-216-864-11	METAL CHIP	0 5% 1/16W
R460	1-216-864-11	METAL CHIP	0 5% 1/16W
R461	1-216-864-11	METAL CHIP	0 5% 1/16W
			(DSR-20MDP)
R462	1-216-842-11	METAL CHIP	56K 5% 1/16W
R463	1-216-833-91	RES, CHIP	10K 5% 1/16W
R464	1-216-864-11	METAL CHIP	0 5% 1/16W
			(DSR-20MD)

Ref. No.	Part No.	Description	Remark
R465	1-218-847-11	METAL CHIP	1K 0.5% 1/16W
R466	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R467	1-216-841-11	METAL CHIP	47K 5% 1/16W
R468	1-216-841-11	METAL CHIP	47K 5% 1/16W
R469	1-216-839-11	METAL CHIP	33K 5% 1/16W
R470	1-216-819-11	METAL CHIP	680 5% 1/16W
R471	1-216-841-11	METAL CHIP	47K 5% 1/16W
R472	1-216-864-11	METAL CHIP	0 5% 1/16W
R473	1-216-821-11	METAL CHIP	1K 5% 1/16W
R474	1-216-826-11	METAL CHIP	2.7K 5% 1/16W
R477	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R480	1-216-864-11	METAL CHIP	0 5% 1/16W
R481	1-216-864-11	METAL CHIP	0 5% 1/16W
R482	1-216-864-11	METAL CHIP	0 5% 1/16W
			(DSR-20MDP)
R484	1-216-864-11	METAL CHIP	0 5% 1/16W
			(DSR-20MD)
R485	1-216-864-11	METAL CHIP	0 5% 1/16W
R486	1-216-821-11	METAL CHIP	1K 5% 1/16W
R487	1-216-821-11	METAL CHIP	1K 5% 1/16W
R488	1-216-833-91	RES, CHIP	10K 5% 1/16W
R489	1-216-821-11	METAL CHIP	1K 5% 1/16W
R492	1-216-821-11	METAL CHIP	1K 5% 1/16W
R493	1-216-833-91	RES, CHIP	10K 5% 1/16W
R494	1-216-022-00	METAL CHIP	75 5% 1/10W
R495	1-216-833-91	RES, CHIP	10K 5% 1/16W
R496	1-216-841-11	METAL CHIP	47K 5% 1/16W
R497	1-216-022-00	METAL CHIP	75 5% 1/10W
R498	1-216-013-00	METAL CHIP	33 5% 1/10W
R499	1-216-833-91	RES, CHIP	10K 5% 1/16W
R500	1-216-015-00	METAL CHIP	39 5% 1/10W
R501	1-216-817-11	METAL CHIP	470 5% 1/16W
R502	1-216-845-11	METAL CHIP	100K 5% 1/16W
R503	1-216-821-11	METAL CHIP	1K 5% 1/16W
R504	1-216-864-11	METAL CHIP	0 5% 1/16W
R505	1-216-845-11	METAL CHIP	100K 5% 1/16W
R506	1-216-864-11	METAL CHIP	0 5% 1/16W
R507	1-216-845-11	METAL CHIP	100K 5% 1/16W
R508	1-216-845-11	METAL CHIP	100K 5% 1/16W
R509	1-216-845-11	METAL CHIP	100K 5% 1/16W
R510	1-216-845-11	METAL CHIP	100K 5% 1/16W
R511	1-216-845-11	METAL CHIP	100K 5% 1/16W
R512	1-216-864-11	METAL CHIP	0 5% 1/16W
R513	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R514	1-216-849-11	METAL CHIP	220K 5% 1/16W
R517	1-216-864-11	METAL CHIP	0 5% 1/16W
R519	1-216-864-11	METAL CHIP	0 5% 1/16W
R520	1-216-833-91	RES, CHIP	10K 5% 1/16W
R521	1-216-864-11	METAL CHIP	0 5% 1/16W
R524	1-216-821-11	METAL CHIP	1K 5% 1/16W
R525	1-216-833-91	RES, CHIP	10K 5% 1/16W
R526	1-216-833-91	RES, CHIP	10K 5% 1/16W
R527	1-216-821-11	METAL CHIP	1K 5% 1/16W
			(DSR-20MDP)
R528	1-216-864-11	METAL CHIP	0 5% 1/16W
R529	1-216-864-11	METAL CHIP	0 5% 1/16W
			(DSR-20MD)
R531	1-216-864-11	METAL CHIP	0 5% 1/16W
R533	1-216-864-11	METAL CHIP	0 5% 1/16W
R534	1-216-864-11	METAL CHIP	0 5% 1/16W
R535	1-216-864-11	METAL CHIP	0 5% 1/16W

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
R536	1-216-864-11	METAL CHIP	0	5%	1/16W	R702	1-216-833-91	RES, CHIP	10K	5%	1/16W
R537	1-216-864-11	METAL CHIP	0	5%	1/16W	R703	1-216-833-91	RES, CHIP	10K	5%	1/16W
R539	1-216-821-11	METAL CHIP	1K	5%	1/16W	R704	1-216-833-91	RES, CHIP	10K	5%	1/16W
R540	1-216-864-11	METAL CHIP	0	5%	1/16W	R705	1-216-833-91	RES, CHIP	10K	5%	1/16W
R541	1-216-864-11	METAL CHIP	0	5%	1/16W	R706	1-216-833-91	RES, CHIP	10K	5%	1/16W
R542	1-216-864-11	METAL CHIP	0	5%	1/16W	R707	1-216-833-91	RES, CHIP	10K	5%	1/16W
R543	1-216-864-11	METAL CHIP	0	5%	1/16W	R708	1-216-833-91	RES, CHIP	10K	5%	1/16W
					(DSR-20MD)	R709	1-216-849-11	METAL CHIP	220K	5%	1/16W
R543	1-211-983-11	METAL CHIP	39	0.5%	1/16W	R710	1-216-849-11	METAL CHIP	220K	5%	1/16W
					(DSR-20MDP)	R711	1-216-839-11	METAL CHIP	33K	5%	1/16W
R601	1-216-841-11	METAL CHIP	47K	5%	1/16W	R712	1-216-839-11	METAL CHIP	33K	5%	1/16W
R602	1-216-841-11	METAL CHIP	47K	5%	1/16W	R713	1-216-835-11	METAL CHIP	15K	5%	1/16W
R603	1-216-813-11	METAL CHIP	220	5%	1/16W	R714	1-216-835-11	METAL CHIP	15K	5%	1/16W
R604	1-216-849-11	METAL CHIP	220K	5%	1/16W	R715	1-216-839-11	METAL CHIP	33K	5%	1/16W
R605	1-216-837-11	METAL CHIP	22K	5%	1/16W	R716	1-216-839-11	METAL CHIP	33K	5%	1/16W
R606	1-216-839-11	METAL CHIP	33K	5%	1/16W	R717	1-216-835-11	METAL CHIP	15K	5%	1/16W
R610	1-216-817-11	METAL CHIP	470	5%	1/16W	R718	1-216-835-11	METAL CHIP	15K	5%	1/16W
R611	1-216-816-11	METAL CHIP	390	5%	1/16W	R719	1-216-864-11	METAL CHIP	0	5%	1/16W
R612	1-216-821-11	METAL CHIP	1K	5%	1/16W	R721	1-216-809-11	METAL CHIP	100	5%	1/16W
R613	1-216-817-11	METAL CHIP	470	5%	1/16W	R722	1-216-841-11	METAL CHIP	47K	5%	1/16W
R615	1-216-864-11	METAL CHIP	0	5%	1/16W	R723	1-216-837-11	METAL CHIP	22K	5%	1/16W
R616	1-216-821-11	METAL CHIP	1K	5%	1/16W	R724	1-216-864-11	METAL CHIP	0	5%	1/16W
R619	1-216-815-11	METAL CHIP	330	5%	1/16W	R726	1-216-809-11	METAL CHIP	100	5%	1/16W
R621	1-216-821-11	METAL CHIP	1K	5%	1/16W	R727	1-216-845-11	METAL CHIP	100K	5%	1/16W
R622	1-216-833-91	RES, CHIP	10K	5%	1/16W	R728	1-216-845-11	METAL CHIP	100K	5%	1/16W
R623	1-216-853-11	METAL CHIP	470K	5%	1/16W	R729	1-216-845-11	METAL CHIP	100K	5%	1/16W
R629	1-216-833-91	RES, CHIP	10K	5%	1/16W	R730	1-216-845-11	METAL CHIP	100K	5%	1/16W
R630	1-216-836-11	METAL CHIP	18K	5%	1/16W	R731	1-216-837-11	METAL CHIP	22K	5%	1/16W
R631	1-216-837-11	METAL CHIP	22K	5%	1/16W	R732	1-216-833-91	RES, CHIP	10K	5%	1/16W
R635	1-216-864-11	METAL CHIP	0	5%	1/16W	R733	1-216-833-91	RES, CHIP	10K	5%	1/16W
R636	1-216-833-91	RES, CHIP	10K	5%	1/16W	R734	1-216-841-11	METAL CHIP	47K	5%	1/16W
R639	1-216-821-11	METAL CHIP	1K	5%	1/16W	R735	1-216-833-91	RES, CHIP	10K	5%	1/16W
R640	1-216-841-11	METAL CHIP	47K	5%	1/16W	R736	1-216-833-91	RES, CHIP	10K	5%	1/16W
R641	1-216-841-11	METAL CHIP	47K	5%	1/16W	R737	1-216-833-91	RES, CHIP	10K	5%	1/16W
R642	1-216-821-11	METAL CHIP	1K	5%	1/16W	R738	1-216-833-91	RES, CHIP	10K	5%	1/16W
R643	1-216-845-11	METAL CHIP	100K	5%	1/16W	R739	1-216-819-11	METAL CHIP	680	5%	1/16W
R652	1-216-819-11	METAL CHIP	680	5%	1/16W	R740	1-216-819-11	METAL CHIP	680	5%	1/16W
R653	1-216-864-11	METAL CHIP	0	5%	1/16W	R741	1-216-833-91	RES, CHIP	10K	5%	1/16W
R654	1-216-864-11	METAL CHIP	0	5%	1/16W	R742	1-216-833-91	RES, CHIP	10K	5%	1/16W
R657	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	R743	1-216-841-11	METAL CHIP	47K	5%	1/16W
R658	1-216-834-11	METAL CHIP	12K	5%	1/16W	R744	1-216-833-91	RES, CHIP	10K	5%	1/16W
R659	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R745	1-216-833-91	RES, CHIP	10K	5%	1/16W
R660	1-216-821-11	METAL CHIP	1K	5%	1/16W	R746	1-216-841-11	METAL CHIP	47K	5%	1/16W
R662	1-216-821-11	METAL CHIP	1K	5%	1/16W	R747	1-216-833-91	RES, CHIP	10K	5%	1/16W
R665	1-216-817-11	METAL CHIP	470	5%	1/16W	R748	1-216-833-91	RES, CHIP	10K	5%	1/16W
R666	1-216-864-11	METAL CHIP	0	5%	1/16W	R749	1-216-833-91	RES, CHIP	10K	5%	1/16W
R667	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	R750	1-216-833-91	RES, CHIP	10K	5%	1/16W
R668	1-216-847-11	METAL CHIP	150K	5%	1/16W	R753	1-218-332-11	RES, CHIP	130K	5%	1/16W
R669	1-216-818-11	METAL CHIP	560	5%	1/16W	R754	1-218-332-11	RES, CHIP	130K	5%	1/16W
R670	1-216-817-11	METAL CHIP	470	5%	1/16W	R755	1-216-833-91	RES, CHIP	10K	5%	1/16W
R676	1-216-025-91	RES, CHIP	100	5%	1/10W	R756	1-218-293-11	RES, CHIP	24K	5%	1/16W
R677	1-216-025-91	RES, CHIP	100	5%	1/10W	R757	1-218-293-11	RES, CHIP	24K	5%	1/16W
R678	1-216-021-00	METAL CHIP	68	5%	1/10W	R758	1-216-833-91	RES, CHIP	10K	5%	1/16W
R679	1-216-864-11	METAL CHIP	0	5%	1/16W	R759	1-216-841-11	METAL CHIP	47K	5%	1/16W
R680	1-216-864-11	METAL CHIP	0	5%	1/16W	R760	1-218-332-11	RES, CHIP	130K	5%	1/16W
R681	1-216-864-11	METAL CHIP	0	5%	1/16W	R761	1-218-332-11	RES, CHIP	130K	5%	1/16W
R682	1-216-864-11	METAL CHIP	0	5%	1/16W	R762	1-216-841-11	METAL CHIP	47K	5%	1/16W
R683	1-216-864-11	METAL CHIP	0	5%	1/16W	R763	1-216-833-91	RES, CHIP	10K	5%	1/16W
R684	1-216-864-11	METAL CHIP	0	5%	1/16W	R764	1-216-849-11	METAL CHIP	220K	5%	1/16W
R701	1-216-833-91	RES, CHIP	10K	5%	1/16W	R765	1-216-833-91	RES, CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R766	1-218-882-11	METAL CHIP	30K	0.5%	1/16W
R767	1-218-862-11	METAL CHIP	4.3K	0.5%	1/16W
R768	1-216-833-91	RES, CHIP	10K	5%	1/16W
R769	1-216-833-91	RES, CHIP	10K	5%	1/16W
R770	1-216-833-91	RES, CHIP	10K	5%	1/16W
R771	1-216-833-91	RES, CHIP	10K	5%	1/16W
R772	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R773	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R774	1-216-833-91	RES, CHIP	10K	5%	1/16W
R775	1-216-809-11	METAL CHIP	100	5%	1/16W
R776	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R777	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R778	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R779	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R780	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R781	1-216-849-11	METAL CHIP	220K	5%	1/16W
R782	1-216-809-11	METAL CHIP	100	5%	1/16W
R783	1-218-290-11	RES, CHIP	6.2K	5%	1/16W
R784	1-218-290-11	RES, CHIP	6.2K	5%	1/16W
R785	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R786	1-218-882-11	METAL CHIP	30K	0.5%	1/16W
R787	1-218-862-11	METAL CHIP	4.3K	0.5%	1/16W
R788	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R789	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R790	1-216-809-11	METAL CHIP	100	5%	1/16W
R791	1-216-809-11	METAL CHIP	100	5%	1/16W
R792	1-216-840-11	METAL CHIP	39K	5%	1/16W
R793	1-216-809-11	METAL CHIP	100	5%	1/16W
R794	1-216-833-91	RES, CHIP	10K	5%	1/16W
R795	1-216-840-11	METAL CHIP	39K	5%	1/16W
R796	1-216-809-11	METAL CHIP	100	5%	1/16W
R797	1-216-821-11	METAL CHIP	1K	5%	1/16W
R798	1-216-821-11	METAL CHIP	1K	5%	1/16W
R799	1-216-821-11	METAL CHIP	1K	5%	1/16W
R800	1-216-813-11	METAL CHIP	220	5%	1/16W
R801	1-216-813-11	METAL CHIP	220	5%	1/16W
R802	1-216-813-11	METAL CHIP	220	5%	1/16W
R803	1-216-813-11	METAL CHIP	220	5%	1/16W
R804	1-216-840-11	METAL CHIP	39K	5%	1/16W
R805	1-216-840-11	METAL CHIP	39K	5%	1/16W
R807	1-216-864-11	METAL CHIP	0	5%	1/16W
R808	1-216-864-11	METAL CHIP	0	5%	1/16W
R809	1-216-833-91	RES, CHIP	10K	5%	1/16W
R810	1-216-833-91	RES, CHIP	10K	5%	1/16W
R811	1-216-833-91	RES, CHIP	10K	5%	1/16W
R812	1-216-833-91	RES, CHIP	10K	5%	1/16W
R813	1-216-833-91	RES, CHIP	10K	5%	1/16W
R814	1-216-833-91	RES, CHIP	10K	5%	1/16W
R815	1-216-864-11	METAL CHIP	0	5%	1/16W
R832	1-216-801-11	METAL CHIP	22	5%	1/16W
R855	1-216-841-11	METAL CHIP	47K	5%	1/16W
R856	1-216-817-11	METAL CHIP	470	5%	1/16W
R857	1-216-841-11	METAL CHIP	47K	5%	1/16W
R858	1-216-833-91	RES, CHIP	10K	5%	1/16W
R859	1-216-833-91	RES, CHIP	10K	5%	1/16W
R860	1-216-833-91	RES, CHIP	10K	5%	1/16W
R861	1-216-833-91	RES, CHIP	10K	5%	1/16W
R862	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R863	1-216-817-11	METAL CHIP	470	5%	1/16W
R864	1-216-817-11	METAL CHIP	470	5%	1/16W

Ref. No.	Part No.	Description			Remark
R865	1-216-821-11	METAL CHIP	1K	5%	1/16W
R866	1-216-864-11	METAL CHIP	0	5%	1/16W
R867	1-216-817-11	METAL CHIP	470	5%	1/16W
R868	1-216-817-11	METAL CHIP	470	5%	1/16W
R869	1-216-817-11	METAL CHIP	470	5%	1/16W
R870	1-216-817-11	METAL CHIP	470	5%	1/16W
R871	1-216-817-11	METAL CHIP	470	5%	1/16W
R872	1-216-817-11	METAL CHIP	470	5%	1/16W
R873	1-216-817-11	METAL CHIP	470	5%	1/16W
R874	1-216-817-11	METAL CHIP	470	5%	1/16W
R875	1-216-817-11	METAL CHIP	470	5%	1/16W
R876	1-216-817-11	METAL CHIP	470	5%	1/16W
R877	1-216-817-11	METAL CHIP	470	5%	1/16W
R878	1-216-817-11	METAL CHIP	470	5%	1/16W
R879	1-216-817-11	METAL CHIP	470	5%	1/16W
R880	1-216-817-11	METAL CHIP	470	5%	1/16W
R881	1-216-817-11	METAL CHIP	470	5%	1/16W
R882	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R883	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R884	1-216-833-91	RES, CHIP	10K	5%	1/16W
R885	1-216-817-11	METAL CHIP	470	5%	1/16W
R886	1-216-833-91	RES, CHIP	10K	5%	1/16W
R887	1-216-817-11	METAL CHIP	470	5%	1/16W
R888	1-216-864-11	METAL CHIP	0	5%	1/16W
R889	1-216-817-11	METAL CHIP	470	5%	1/16W
R890	1-216-864-11	METAL CHIP	0	5%	1/16W
R891	1-216-817-11	METAL CHIP	470	5%	1/16W
R892	1-216-833-91	RES, CHIP	10K	5%	1/16W
R893	1-216-864-11	METAL CHIP	0	5%	1/16W
R894	1-216-833-91	RES, CHIP	10K	5%	1/16W
R895	1-216-864-11	METAL CHIP	0	5%	1/16W
R896	1-216-817-11	METAL CHIP	470	5%	1/16W
R897	1-216-833-91	RES, CHIP	10K	5%	1/16W
R898	1-216-864-11	METAL CHIP	0	5%	1/16W
R899	1-216-817-11	METAL CHIP	470	5%	1/16W
R900	1-216-833-91	RES, CHIP	10K	5%	1/16W
R901	1-216-833-91	RES, CHIP	10K	5%	1/16W
R902	1-216-864-11	METAL CHIP	0	5%	1/16W
R903	1-216-817-11	METAL CHIP	470	5%	1/16W
R904	1-216-833-91	RES, CHIP	10K	5%	1/16W
R905	1-216-833-91	RES, CHIP	10K	5%	1/16W
R906	1-216-864-11	METAL CHIP	0	5%	1/16W
R907	1-216-833-91	RES, CHIP	10K	5%	1/16W
R908	1-216-864-11	METAL CHIP	0	5%	1/16W
R909	1-216-817-11	METAL CHIP	470	5%	1/16W
R910	1-216-817-11	METAL CHIP	470	5%	1/16W
R911	1-216-833-91	RES, CHIP	10K	5%	1/16W
R912	1-216-817-11	METAL CHIP	470	5%	1/16W
R913	1-216-833-91	RES, CHIP	10K	5%	1/16W
R914	1-216-841-11	METAL CHIP	47K	5%	1/16W
R915	1-216-817-11	METAL CHIP	470	5%	1/16W
R916	1-216-833-91	RES, CHIP	10K	5%	1/16W
R917	1-216-817-11	METAL CHIP	470	5%	1/16W
R918	1-216-833-91	RES, CHIP	10K	5%	1/16W
R919	1-216-845-11	METAL CHIP	100K	5%	1/16W
R920	1-216-841-11	METAL CHIP	47K	5%	1/16W
R921	1-216-817-11	METAL CHIP	470	5%	1/16W
R922	1-216-833-91	RES, CHIP	10K	5%	1/16W
R923	1-216-841-11	METAL CHIP	47K	5%	1/16W
R924	1-216-833-91	RES, CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
R927	1-216-817-11	METAL CHIP	470	5%	1/16W	R997	1-216-817-11	METAL CHIP	470	5%	1/16W
R928	1-216-864-11	METAL CHIP	0	5%	1/16W	R998	1-216-864-11	METAL CHIP	0	5%	1/16W
R930	1-216-864-11	METAL CHIP	0	5%	1/16W	R999	1-216-864-11	METAL CHIP	0	5%	1/16W
R931	1-216-864-11	METAL CHIP	0	5%	1/16W	R1001	1-216-817-11	METAL CHIP	470	5%	1/16W
R932	1-216-864-11	METAL CHIP	0	5%	1/16W	R1002	1-216-817-11	METAL CHIP	470	5%	1/16W
R933	1-216-864-11	METAL CHIP	0	5%	1/16W	R1003	1-216-817-11	METAL CHIP	470	5%	1/16W
R934	1-216-864-11	METAL CHIP	0	5%	1/16W	R1004	1-216-801-11	METAL CHIP	22	5%	1/16W
R935	1-216-864-11	METAL CHIP	0	5%	1/16W	R1005	1-216-817-11	METAL CHIP	470	5%	1/16W
R936	1-216-864-11	METAL CHIP	0	5%	1/16W	R1027	1-216-817-11	METAL CHIP	470	5%	1/16W
R937	1-216-864-11	METAL CHIP	0	5%	1/16W	R1028	1-216-817-11	METAL CHIP	470	5%	1/16W
R938	1-216-864-11	METAL CHIP	0	5%	1/16W	R1029	1-216-027-00	METAL CHIP	120	5%	1/10W
R940	1-216-864-11	METAL CHIP	0	5%	1/16W	R1030	1-216-025-91	RES, CHIP	100	5%	1/10W
R941	1-216-821-11	METAL CHIP	1K	5%	1/16W	R1031	1-216-166-00	RES, CHIP	47	5%	1/8W
R942	1-216-844-11	METAL CHIP	82K	5%	1/16W	R1032	1-216-166-00	RES, CHIP	47	5%	1/8W
R943	1-216-841-11	METAL CHIP	47K	5%	1/16W	R1033	1-216-864-11	METAL CHIP	0	5%	1/16W
R944	1-216-853-11	METAL CHIP	470K	5%	1/16W	R1034	1-216-850-11	METAL CHIP	270K	5%	1/16W
R946	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	R1035	1-216-845-11	METAL CHIP	100K	5%	1/16W
R948	1-216-170-00	RES, CHIP	68	5%	1/8W	R1036	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R949	1-216-170-00	RES, CHIP	68	5%	1/8W	< VARIABLE RESISTOR >					
R950	1-216-833-91	RES, CHIP	10K	5%	1/16W	RV201	1-238-853-11	RES, ADJ, CERMET 1K (C GAIN)			
R951	1-216-037-00	METAL CHIP	330	5%	1/10W	RV202	1-238-853-11	RES, ADJ, CERMET 1K (AGC)			
R952	1-216-170-00	RES, CHIP	68	5%	1/8W	RV203	1-238-853-11	RES, ADJ, CERMET 1K (Y GAIN)			
R953	1-216-170-00	RES, CHIP	68	5%	1/8W	RV204	1-238-852-11	RES, ADJ, CERMET 470 (REC CR LEVEL)			
R955	1-216-170-00	RES, CHIP	68	5%	1/8W	RV205	1-238-852-11	RES, ADJ, CERMET 470 (REC Y LEVEL)			
R956	1-216-170-00	RES, CHIP	68	5%	1/8W	RV206	1-238-852-11	RES, ADJ, CERMET 470 (REC CB LEVEL)			
R957	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	RV207	1-238-855-11	RES, ADJ, CERMET 4.7K (DECODER HUE)			
R958	1-216-801-11	METAL CHIP	22	5%	1/16W	RV401	1-238-853-11	RES, ADJ, CERMET 1K (EE Y LEVEL)			
R959	1-218-867-11	METAL CHIP	6.8K	0.5%	1/16W	RV402	1-238-853-11	RES, ADJ, CERMET 1K (PB BURST LEVEL)			
R960	1-218-871-11	METAL CHIP	10K	0.5%	1/16W						(DSR-20MDP)
R961	1-216-864-11	METAL CHIP	0	5%	1/16W	RV404	1-238-853-11	RES, ADJ, CERMET 1K (EE C LEVEL)			
R962	1-216-817-11	METAL CHIP	470	5%	1/16W	RV406	1-238-853-11	RES, ADJ, CERMET 1K (PB C LEVEL)			
R963	1-216-833-91	RES, CHIP	10K	5%	1/16W	< TEST PIN >					
R964	1-216-864-11	METAL CHIP	0	5%	1/16W	TP201	1-535-757-11	CHIP, CHECKER			
R965	1-216-817-11	METAL CHIP	470	5%	1/16W	TP401	1-535-757-11	CHIP, CHECKER			
R966	1-216-864-11	METAL CHIP	0	5%	1/16W	TP859	1-535-757-11	CHIP, CHECKER			
R967	1-216-864-11	METAL CHIP	0	5%	1/16W	TP860	1-535-757-11	CHIP, CHECKER			
R968	1-216-833-91	RES, CHIP	10K	5%	1/16W	< VIBRATOR >					
R969	1-216-817-11	METAL CHIP	470	5%	1/16W	X051	1-579-125-11	VIBRATOR, CERAMIC (8MHz)			
R970	1-216-864-11	METAL CHIP	0	5%	1/16W	X052	1-767-879-11	VIBRATOR, CERAMIC (1.2288MHz)			
R972	1-216-805-11	METAL CHIP	47	5%	1/16W	X201	1-579-738-21	VIBRATOR, CRYSTAL (14.318182MHz)			
R973	1-216-841-11	METAL CHIP	47K	5%	1/16W						(DSR-20MD)
R974	1-216-841-11	METAL CHIP	47K	5%	1/16W	X201	1-579-780-21	VIBRATOR, CRYSTAL (17.734475MHz)			
R975	1-216-841-11	METAL CHIP	47K	5%	1/16W						(DSR-20MDP)
R976	1-216-817-11	METAL CHIP	470	5%	1/16W	X401	1-577-165-11	VIBLATOR, CERAMIC (500kHz)			
R977	1-216-154-00	RES, CHIP	15	5%	1/8W	X402	1-567-900-11	OSCILLATOR, CRYSTAL (14.31818MHz)			
R978	1-216-154-00	RES, CHIP	15	5%	1/8W						(DSR-20MD)
R979	1-216-844-11	METAL CHIP	82K	5%	1/16W	X402	1-567-733-11	VIBRATOR, CRYSTAL (17.734475MHz)			
R980	1-216-841-11	METAL CHIP	47K	5%	1/16W						(DSR-20MDP)
R981	1-216-841-11	METAL CHIP	47K	5%	1/16W	X403	1-579-738-21	VIBRATOR, CRYSTAL (14.318182MHz)			
R982	1-219-570-11	RES, CHIP	10M	5%	1/16W						(DSR-20MD)
R985	1-216-837-11	METAL CHIP	22K	5%	1/16W	X403	1-579-780-21	VIBRATOR, CRYSTAL (17.734475MHz)			
R986	1-216-833-91	RES, CHIP	10K	5%	1/16W						(DSR-20MDP)
R988	1-216-817-11	METAL CHIP	470	5%	1/16W	X601	1-579-466-11	VIBRATOR, CRYSTAL (3.579545MHz)			
R989	1-216-864-11	METAL CHIP	0	5%	1/16W						(DSR-20MD)
R992	1-216-817-11	METAL CHIP	470	5%	1/16W	X601	1-579-661-21	OSCILLATOR, CRYSTAL (4.433619MHz)			
R993	1-216-845-11	METAL CHIP	100K	5%	1/16W						(DSR-20MDP)
R994	1-216-817-11	METAL CHIP	470	5%	1/16W	X651	1-567-900-11	OSCILLATOR, CRYSTAL (14.31818MHz)			
R995	1-216-833-91	RES, CHIP	10K	5%	1/16W						(DSR-20MD)
R996	1-216-817-11	METAL CHIP	470	5%	1/16W						

# VA-102

Ref. No.	Part No.	Description	Remark
X651	1-567-733-11	VIBRATOR, CRYSTAL (17.734475MHz)	(DSR-20MDP)
X652	1-577-165-11	VIBLATOR, CERAMIC (500kHz)	
X851	1-767-450-11	VIBRATOR, CERAMIC (20MHz)	
X852	1-760-458-21	VIBRATOR, CRYSTAL (32.768kHz)	
X853	1-760-458-21	VIBRATOR, CRYSTAL (32.768kHz)	

## MISCELLANEOUS

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55	1-782-823-11	CABLE, FLAT (FVH-4)	
56	1-782-825-11	CABLE, FLAT (FVF-8)	
57	1-782-824-11	CABLE, FLAT (FVJ-7)	
△58	1-468-441-11	POWER BLOCK (U-1/U-2) (DSR-20MD)	
△58	1-468-442-11	POWER BLOCK (U-1/U-2) (DSR-20MDP)	
60	1-782-822-11	CABLE, FLAT (FVR-9)	
62	1-782-826-11	CABLE, FLAT (FVR-10)	
65	1-958-841-11	HARNESS (DP-73)	
△67	1-958-585-11	HARNESS (AC-227)	
68	1-958-059-11	HARNESS (VP-72)	
101	1-776-148-11	CABLE, FLAT (FCM-11) 15P	
102	1-776-145-11	CABLE, FLAT (FCM-8) 16P	
105	1-764-137-11	CONNECTOR, TRANSLATION 15P	
113	1-958-288-11	HARNESS (CM-130)	
114	1-776-151-11	CABLE, FLAT (FCM-12) 14P	
115	1-776-147-11	CABLE, FLAT (FCM-10) 15P	
116	1-776-146-11	CABLE, FLAT (FCM-9) 9P	
117	1-958-057-11	HARNESS (CP-79)	
118	1-958-061-11	HARNESS (VJ-103)	
119	1-958-058-11	HARNESS (JP-55)	
120	1-958-060-11	HARNESS (VJ-102)	
121	1-543-793-11	FILTER, CLAMP (FERRITE CORE)	
755	A-7044-015-A	DRUM ASSY (DEH-08B-R)	
851	1-658-990-11	FP-406 FLEXIBLE BOARD	
CN901	1-770-312-21	CONNECTOR 4P	
J901	1-564-603-41	CONNECTOR (WITH DC SW) 4P	
M901	X-3944-897-2	FPC ASSY, MOTOR	
M902	8-835-545-01	MOTOR, DC SCD11A/J-N (CAPSTAN)	
M903	X-3945-784-1	MOTOR ASSY, LM (LOADING)	
M904	8-835-537-01	MOTOR, DC SRD11A/J-N (REEL)	
M905	1-698-534-31	FAN, DC	
S001	1-762-550-11	SWITCH, ROTARY (MODE)	
S901	1-762-551-11	SWITCH, PUSH (REC PROOF)	
S902	1-572-288-11	SWITCH, PUSH (C IN SW)	

Ref. No.	Part No.	Description	Remark
		ACCESSORIES	
		*****	
	1-475-693-11	REMOTE COMMANDER (RMT-DS20)	
△	1-559-945-11	CORD, POWER (DSR-20MD)	
△	1-551-631-22	CORD, POWER (DSR-20MDP)	
	3-867-983-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH)	
	3-867-983-21	MANUAL, INSTRUCTION (GERMAN, ITALIAN)	(DSR-20MDP)

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## HARDWARE LIST

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#1	7-685-533-19	SCREW +BTP 2.6X6 TYPE2 N-S
#2	7-682-552-09	SCREW +P 3X16
#3	7-682-547-09	SCREW +B 3X6
#4	7-685-132-19	SCREW +P 2.6X5 TYPE2 NON-SLIT
#5	7-682-147-01	SCREW +P 3X6
#6	7-628-253-20	SCREW +PS 2X6
#7	7-682-646-09	SCREW +PS 3X5
#8	7-628-253-00	SCREW +PS 2X4
#9	7-627-553-37	SCREW (M2X3), SPECIAL HEAD
#10	7-685-871-01	SCREW +BVTT 3X6 (S TIGHT)

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

# DSR-20MD/20MDP

RMT-DS20

**SONY**

## SERVICE MANUAL

*US Model*  
*Canadian Model*  
*DSR-20MD*  
*AEP Model*  
*Australian Model*  
*New Zealand Model*  
*DSR-20MDP*

## SUPPLEMENT-1

File this supplement with the service manual.

- Addition of specifications.

### SPECIFICATIONS

#### Medical Specifications

Protection against electric shock:

Class I

Protection against harmful ingress of water:

Ordinary

Degree of safety in the presence of flammable anesthetics or oxygen:

Not suitable for use in the presence of flammable anesthetics or oxygen

Mode of operation:

Continuous